

INSTRUMENT PANEL SYSTEMS

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DESCRIPTION AND OPERATION

INSTRUMENT PANEL SYSTEM

DESCRIPTION

The instrument panel serves as the command center of the vehicle, which necessarily makes it a very complex unit. The instrument panel is designed to house the controls and monitors for standard and optional powertrains, climate control systems, audio systems, lighting systems, safety systems and many other comfort or convenience items. The instrument panel is also designed so that all of the various controls can be safely reached and the monitors can be easily viewed by the vehicle operator when driving, while still allowing relative ease of access to each of these items for service. See the owner's manual in the vehicle glove box for more information on the features, use and operation of all of the instrument panel components and systems.

This group is responsible for covering service information for the vehicle instrument panel systems. However, complete service information coverage for all of the systems and components housed in the instrument panel in a single section of the service manual would not be practical. Therefore, the service information for any component will be found in the group designated to cover the vehicle system that the

component belongs to, even though the component is mounted on or in the instrument panel. If you cannot locate a listing for the component or system you are servicing in the table of contents for this group, or if you are uncertain as to which vehicle system a component belongs to, it is suggested that you refer to the alphabetical **Component and System Index** found at the back of this service manual.

INSTRUMENT PANEL

DESCRIPTION

This instrument panel uses a full-width structural plastic foundation as its primary support. When the three primary molded plastic components of this structure are vibration welded together they provide superior instrument panel stiffness and integrity to help reduce buzzes, squeaks, and rattles even on the bumpiest roads.

This type of construction also provides improved energy absorption which, in conjunction with the dual airbag modules and seat belts, helps to improve occupant protection. This foundation structure also serves as the ducting for the heating and air conditioning system panel and defroster outlets, which greatly reduces the number of components used over conventional instrument panel construction.

DESCRIPTION AND OPERATION (Continued)

Modular instrument panel construction allows all of the gauges and controls to be serviced from the front of the panel. In addition, most of the instrument panel electrical components can be accessed without complete instrument panel removal. If necessary, the instrument panel can be removed from the vehicle as an assembly.

Removal of the steering column opening cover provides access to the steering column mounts, the steering column wiring, the gearshift interlock mechanism, the junction block, the relay and fuse block and much of the instrument panel wiring. Removal of the glove box provides access to the Central Timer Module (CTM), the radio antenna coaxial cable, and additional instrument panel wiring.

Removal of the instrument cluster bezel allows access to the cluster assembly, the radio, the exterior lighting system switches, and the heating and air conditioning controls. Removal of the cluster assembly allows access to the cluster illumination and indicator lamp bulbs, and more of the instrument panel wiring. The instrument panel lower bezel contains an ash receiver and has provisions for a cigar lighter and an accessory power outlet. Depending upon the body style, the lower bezel may also contain a passenger airbag on/off switch (except quad cab) or an optional rear window defogger switch (quad cab only).

Removal of the complete instrument panel is required for service of the passenger side airbag module and most passenger compartment components of the heating and air conditioning systems.

INSTRUMENT CLUSTER

DESCRIPTION

A single instrument cluster is offered on this model. The cluster is an electromechanical unit that utilizes integrated circuitry and information carried on the Chrysler Collision Detection (CCD) data bus network for control of all gauges and many of the indicator lamps. This cluster also incorporates a digital Vacuum Fluorescent Display (VFD) for the odometer/trip odometer display functions. Some variations of this cluster exist due to optional equipment and regulatory requirements.

This instrument cluster includes the following analog gauges:

- Coolant temperature gauge
- Fuel gauge
- Oil pressure gauge
- Speedometer
- Tachometer
- Voltmeter.

This instrument cluster also includes provisions for the following indicator lamps:

- Airbag indicator lamp
- Anti-lock Brake System (ABS) lamp
- Brake warning lamp
- Check gauges lamp
- Cruise-on indicator lamp (programmable)
- Door ajar lamp
- Four-wheel drive lock indicator lamp
- Headlamp high beam indicator lamp
- Low fuel warning lamp
- Low washer fluid warning lamp
- Malfunction Indicator Lamp (MIL)
- Overdrive-off indicator lamp (automatic transmission - programmable)
- Seat belt reminder lamp
- Security lamp
- Transmission oil temperature warning lamp (automatic transmission - programmable)
- Turn signal indicator lamps
- Upshift indicator lamp (manual transmission - programmable).

The instrument cluster includes a provision for mounting an automatic transmission gear selector indicator in the lower right corner of the cluster. A mechanical gear selector indicator is used with all automatic transmissions except the optional 45RFE to indicate the gear selector position. If the vehicle is equipped with the optional 45RFE automatic transmission, the instrument cluster contains an integral electronic gear selector indicator using a second digital Vacuum Fluorescent Display (VFD) to indicate the gear selector position. The electronic gear selector indicator is controlled by messages received by the instrument cluster from the electronic Transmission Control Module (TCM) over the CCD data bus network. Models equipped with a manual transmission have a block-out plate installed in place of the gear selector indicator.

The instrument cluster circuitry has a self-diagnostic actuator test capability, which will test each of the CCD bus message-controlled functions of the cluster by lighting the appropriate indicator lamps and positioning the gauge needles at several predetermined locations on the gauge faces in a prescribed sequence. For more information on this function, refer to **Instrument Cluster** in the Diagnosis and Testing section of this group.

The instrument cluster circuitry also sends chime tone requests over a hard wired circuit to the Central Timer Module (CTM) when it monitors certain conditions or inputs. The CTM replaces the chime or buzzer module. Refer to **Chime Warning System** in the Description and Operation section of Group 8U - Chime/Buzzer Warning Systems for more information on this feature.

The instrument cluster for this model is serviced only as a complete unit. If a cluster gauge or the

DESCRIPTION AND OPERATION (Continued)

cluster circuit board are faulty, the entire cluster must be replaced. The cluster lens, the cluster hood, the rear cluster housing cover, and the incandescent lamp bulbs and holders are available for service replacement.

OPERATION**GAUGE**

With the ignition switch in the On or Start positions, voltage is supplied to all gauges through the instrument cluster electronic circuit board. With the ignition switch in the Off position, voltage is not supplied to the gauges. The gauges do not accurately indicate any vehicle condition unless the ignition switch is in the On or Start positions.

All of the instrument cluster gauges, except the odometer, are air core magnetic units. Two fixed electromagnetic coils are located within the gauge. These coils are wrapped at right angles to each other around a movable permanent magnet. The movable magnet is suspended within the coils on one end of a shaft. The gauge needle is attached to the other end of the shaft.

One of the coils has a fixed current flowing through it to maintain a constant magnetic field strength. Current flow through the second coil changes, which causes changes in its magnetic field strength. The current flowing through the second coil is changed by the instrument cluster electronic circuitry in response to messages received on the Chrysler Collision Detection (CCD) data bus network.

The gauge needle moves as the movable permanent magnet aligns itself to the changing magnetic fields created around it by the electromagnets. The instrument cluster circuitry is programmed to move all of the gauge needles back to the low end of their respective scales after the ignition switch is turned to the Off position.

INDICATOR LAMP

Indicator lamps are located in the instrument cluster and are served by the cluster circuit board and connectors. Many of the indicator lamps in the instrument cluster are controlled by the instrument cluster circuitry in response to messages received over the Chrysler Collision Detection (CCD) data bus network.

The four-wheel drive lock indicator lamp, headlamp high beam indicator lamp, low washer fluid warning lamp, security lamp and turn signal indicator lamps are hard wired. The seat belt reminder lamp is controlled by the instrument cluster programming and by CCD data bus messages from the Airbag Control Module (ACM). The brake warning lamp is controlled by a hard wired input from the

park brake switch and by CCD data bus messages from the Controller Anti-lock Brake (CAB). The instrument cluster circuitry uses CCD data bus messages from the Powertrain Control Module (PCM), ACM, and CAB to control all of the remaining indicator lamps.

In addition, certain indicator lamps in this instrument cluster are programmable. This feature allows those indicator lamps to be activated or deactivated with a DRBIII® scan tool through the instrument cluster electronic circuitry for compatibility with certain optional equipment. The programmable indicator lamps for this model include the cruise-on indicator lamp, the overdrive-off indicator lamp, the transmission oil temperature warning lamp and the upshift indicator lamp.

Except for the cruise-on indicator lamp, the headlamp high beam indicator lamp and the turn signal indicator lamps, each of the indicator lamps in the instrument cluster is illuminated by a dedicated Light-Emitting Diode (LED). If an LED should fail, the entire instrument cluster must be replaced. The cruise-on indicator lamp is part of the odometer VFD display. The headlamp high beam indicator lamp and the turn signal indicator lamps use incandescent bulbs and holders. Each incandescent indicator lamp has a replaceable bulb and bulb holder.

CLUSTER ILLUMINATION LAMP

The cluster illumination lamps are hard wired in the instrument cluster. When the park or head lamps are turned on, the cluster illumination lamps light. Illumination brightness is adjusted by rotating the headlamp switch panel lamps dimmer thumbwheel (down to dim, up to brighten). The instrument cluster illumination lamps receive battery feed from the panel dimmer circuitry in the headlamp switch through a fuse in the junction block.

The instrument cluster electronic circuitry also monitors the cluster illumination lamp dimming level whenever the park or head lamps are turned on. The instrument cluster electronic circuitry responds by adjusting the dimming level of the instrument cluster Vacuum Fluorescent Display(s) (VFD), and sending dimming level messages over the Chrysler Collision Detection (CCD) data bus network. All VFDs are illuminated at full brightness for improved daylight visibility whenever the park lamps or headlamps are turned off.

Each of the cluster illumination lamps is located on the instrument cluster circuit board. Each cluster illumination lamp has a replaceable bulb and bulb holder.

DESCRIPTION AND OPERATION (Continued)

CENTRAL TIMER MODULE

DESCRIPTION

Two versions of the Central Timer Module (CTM) are available on this vehicle, a base version and a high-line version. The base version of the CTM is used on base models of the vehicle. The base version of the CTM combines the functions of a chime/buzzer module, an intermittent wipe module, and an ignition lamp time delay relay in a single unit. The base CTM also uses inputs from the door ajar switches, the headlamp switch and the key-in ignition switch to control the output to the dome lamp circuits, which allows the base CTM to provide load shedding to help protect the battery from becoming discharged.

The high-line version of the CTM is used on high-line vehicles. The high-line CTM provides all of the functions of the base version CTM, but also is used to control and integrate many of the additional electronic functions and features included on the high-line models. The high-line version of the CTM contains a central processing unit and interfaces with other modules in the vehicle on the Chrysler Collision Detection (CCD) data bus network.

The CCD data bus network allows the sharing of sensor information. This helps to reduce wire harness complexity, reduce internal controller hardware, and reduce component sensor current loads. At the same time, this system provides increased reliability, enhanced diagnostics, and allows the addition of many new feature capabilities.

Both versions of the CTM are mounted under the passenger side end of the instrument panel, outboard of the instrument panel glove box opening. For diagnosis of the base version of the CTM, refer to **Central Timer Module** in the Diagnosis and Testing section of Group 8U - Chime/Buzzer Warning Systems. For diagnosis of the high-line version of the CTM or the CCD data bus, the use of a DRB scan tool and the proper Diagnostic Procedures manual are recommended. The CTM cannot be repaired and, if faulty or damaged, it must be replaced.

OPERATION

Some of the functions and features that the CTM supports or controls include:

- Chimes for the following conditions:
- Headlamps on with ignition off and driver door open warning
- Key in ignition with ignition off and driver door open warning
- ABS lamp warning (if the vehicle is so equipped)
- Airbag lamp warning
- Check gauges lamp warning
- Door ajar lamp warning
- Low fuel lamp warning

- Low washer fluid lamp warning
- Seat belt reminder lamp warning
- Transmission oil temperature lamp warning (automatic transmission)
- Central locking
- Courtesy lamp defeat
- Courtesy lamp time-out (high-line only)
- Intermittent wipe control
- Enhanced accident response (high-line only)
- Horn chirp upon door lock with RKE (customer programmable) (high-line only)
- Illuminated entry (high-line only)
- Power door lock control (high-line only)
- Power lock inhibit (high-line only)
- Remote Keyless Entry (RKE) (high-line only)
- Remote radio switches (high-line only)
- Rolling door locks (customer programmable) (high-line only)
- Speed sensitive intermittent wipe (high-line only)
- Vehicle Theft Security System (VTSS) (high-line only) (if the vehicle is so equipped)
- Wipe after wash (high-line only).

More information on the operation of these CTM features and functions can be found in the group that covers the system to which that feature or function applies.

CIGAR LIGHTER

DESCRIPTION

A cigar lighter is standard equipment on this model. The cigar lighter is installed in the instrument panel lower bezel, which is located near the center of the instrument panel, below the radio. The cigar lighter base is secured by a snap fit within the instrument panel lower bezel.

The cigar lighter knob and heating element unit, and the cigar lighter receptacle unit are available for service. These components cannot be repaired and, if faulty or damaged, they must be replaced.

OPERATION

The cigar lighter consists of two major components: a knob and heating element unit, and the cigar lighter base or receptacle shell. The receptacle shell is connected to ground, and an insulated contact in the bottom of the shell is connected to battery current. The cigar lighter receives battery voltage from a fuse in the junction block only when the ignition switch is in the Accessory or On positions.

The knob and heating element are encased within a spring-loaded housing, which also features a sliding protective heat shield. When the knob and heating element are inserted in the receptacle shell, the heating element resistor coil is grounded through its

DESCRIPTION AND OPERATION (Continued)

housing to the receptacle shell. If the cigar lighter knob is pushed inward, the heat shield slides up toward the knob exposing the heating element, and the heating element extends from the housing toward the insulated contact in the bottom of the receptacle shell.

Two small spring-clip retainers are located on either side of the insulated contact inside the bottom of the receptacle shell. These clips engage and hold the heating element against the insulated contact long enough for the resistor coil to heat up. When the heating element is engaged with the contact, battery current can flow through the resistor coil to ground, causing the resistor coil to heat.

When the resistor coil becomes sufficiently heated, excess heat radiates from the heating element causing the spring-clips to expand. Once the spring-clips expand far enough to release the heating element, the spring-loaded housing forces the knob and heating element to pop back outward to their relaxed position. When the cigar lighter knob and element are pulled out of the receptacle shell, the protective heat shield slides downward on the housing so that the heating element is recessed and shielded around its circumference for safety.

GEAR SELECTOR INDICATOR

DESCRIPTION

An automatic transmission gear selector indicator is standard factory-installed equipment in this model, when it is also equipped with an optional automatic transmission. Two types of gear selector indicators are used, mechanical or electronic. Either gear selector indicator gives an indication of the transmission gear that has been selected with the automatic transmission gear selector lever. If the vehicle is equipped with the optional 45RFE automatic transmission, the instrument cluster contains an integral electronic gear selector indicator. All other automatic transmission types use the mechanical gear selector indicator.

Diagnosis of the electronic gear selector indicator should be performed using a DRBIII® scan tool and the proper Diagnostic Procedures manual. The electronic gear selector indicator cannot be adjusted or repaired. If faulty or damaged, the instrument cluster unit must be replaced.

The mechanical gear selector indicator housing is mounted to the rear of the instrument cluster housing. The mechanical gear selector indicator pointer is easily visible through an opening provided in the front of the instrument cluster mask, and is also lighted by the cluster illumination lamps for visibility at night. This group covers only the removal and installation of the mechanical gear selector indicator

from the instrument cluster. Refer to **Steering Column** in the Removal and Installation section of Group 19 - Steering for the mechanical gear selector indicator cable adjustment procedures.

OPERATION

The electronic gear selector indicator uses a digital Vacuum Fluorescent Display (VFD) to indicate the gear selector position. The electronic gear selector indicator is controlled by messages received by the instrument cluster circuitry from the electronic Transmission Control Module (TCM) over the CCD data bus network.

The mechanical gear selector indicator has a spring-loaded pointer that is mechanically actuated by a cable connected to the gear selector indicator driver lever of the gear selector lever mechanism on the steering column. When the gear selector lever is moved the indicator driver lever moves, which actuates the spring-loaded pointer through the mechanical actuator cable. An adjuster mounted on the steering column housing provides a mechanical means of calibrating the gear selector indicator mechanism.

POWER OUTLET

DESCRIPTION

An accessory power outlet is optional equipment on this model. The power outlet is installed in the instrument panel lower bezel, which is located near the center of the instrument panel, below the radio. The power outlet base is secured by a snap fit within the instrument panel lower bezel. A plastic protective cap snaps into the power outlet base when the power outlet is not being used, and hangs from the power outlet base mount by an integral bail strap while the power outlet is in use.

The power outlet receptacle unit and the accessory power outlet protective cap are available for service. The power outlet receptacle cannot be repaired and, if faulty or damaged, it must be replaced.

OPERATION

The power outlet base or receptacle shell is connected to ground, and an insulated contact in the bottom of the shell is connected to battery current. The power outlet receives battery voltage from a fuse in the Power Distribution Center (PDC) at all times.

While the power outlet is very similar to a cigar lighter base unit, it does not include the two small spring-clip retainers inside the bottom of the receptacle shell that are used to secure the cigar lighter heating element to the insulated contact.

DIAGNOSIS AND TESTING

INSTRUMENT CLUSTER

If all of the gauges and/or indicator lamps are inoperative, perform the Preliminary Diagnosis. If an individual gauge or Chrysler Collision Detection (CCD) data bus message-controlled indicator lamp is inoperative, go directly to the Self-Diagnostic Test. If an individual hard wired indicator lamp is inoperative, refer to **Instrument Cluster - Hard Wired Lamp Diagnosis** in the Diagnosis and Testing section of this group for the procedures to diagnosis that lamp. For complete circuit diagrams, refer to **Instrument Cluster** in the Contents of Group 8W - Wiring Diagrams.

NOTE: Certain indicator lamps in this instrument cluster are programmable. This feature allows those indicator lamps to be activated or deactivated with a DRBIII® scan tool through the instrument cluster electronic circuitry for compatibility with certain optional equipment. If the problem being diagnosed involves improper illumination of the cruise-on indicator lamp, the overdrive-off indicator lamp, the transmission oil temperature warning lamp, or the upshift indicator lamp, use a DRBIII® scan tool to be certain that the instrument cluster has been programmed with the proper vehicle equipment option settings.

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

PRELIMINARY DIAGNOSIS

(1) If the indicator lamps operate, but none of the gauges operate, go to Step 2. If all of the gauges and the CCD data bus message-controlled indicator lamps are inoperative, go to Step 5.

(2) Check the fused B(+) fuse in the junction block. If OK, go to Step 3. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(3) Check for battery voltage at the fused B(+) fuse in the junction block. If OK, go to Step 4. If not OK, repair the open fused B(+) circuit to the battery as required.

(4) Disconnect and isolate the battery negative cable. Remove the instrument cluster. Connect the

battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the instrument cluster wire harness connector A. If OK, refer to **Instrument Cluster - Self-Diagnostic Test** in the Diagnosis and Testing section of this group. If not OK, repair the open fused B(+) circuit to the fuse in the junction block as required.

(5) Check the fused ignition switch output (run/start) fuse in the junction block. If OK, go to Step 6. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(6) Turn the ignition switch to the On position and check for battery voltage at the fused ignition switch output (run/start) fuse in the junction block. If OK, go to Step 7. If not OK, repair the open fused ignition switch output (run/start) circuit to the ignition switch as required.

(7) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Install the instrument cluster. Connect the battery negative cable. Turn the ignition switch to the On position. Set the park brake. The red brake warning lamp should light. If OK, go to Step 8. If not OK, go to Step 9.

(8) Turn the ignition switch to the Off position. Turn on the park lamps and adjust the panel lamps dimmer thumbwheel on the headlamp switch to the full bright position. The cluster illumination lamps should light. If OK, go to Step 10. If not OK, repair the open power ground circuit from the instrument cluster wire harness connector A to ground as required.

(9) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Remove the instrument cluster. Connect the battery negative cable. Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run/start) circuit cavity of the instrument cluster wire harness connector A. If OK, refer to **Instrument Cluster - Self-Diagnostic Test** in the Diagnosis and Testing section of this group. If not OK, repair the open fused ignition switch output (run/start) circuit to the fuse in the junction block as required.

(10) Disconnect and isolate the battery negative cable. Remove the instrument cluster. Check for continuity between the logic ground circuit cavity of the instrument cluster wire harness connector A and a good ground. There should be continuity. If OK, refer to **Instrument Cluster - Self-Diagnostic Test** in the Diagnosis and Testing section of this group. If not OK, repair the open logic ground circuit to ground as required.

DIAGNOSIS AND TESTING (Continued)

SELF-DIAGNOSTIC TEST

The instrument cluster self-diagnostic test will put the instrument cluster into its self-diagnostic mode. In this mode the instrument cluster can perform a self-diagnostic test that will confirm that the instrument cluster circuitry, the gauges, and the CCD data bus message-controlled indicator lamps are capable of operating as designed.

However, there may still be a problem with the CCD data bus, the Powertrain Control Module (PCM), the Transmission Control Module (TCM), the Airbag Control Module (ACM), the Controller Anti-lock Brake (CAB), or the inputs to one of these electronic control modules. Use a DRBIII® scan tool and the proper Diagnostic Procedures manual for testing of these components.

(1) Begin the test with the ignition switch in the Off position.

(2) Depress the trip odometer reset button.

(3) While holding the trip odometer reset button depressed, turn the ignition switch to the On position, but do not start the engine.

(4) Keep the trip odometer reset button depressed for about ten seconds, until **CHEC** appears in the odometer display, then release the odometer reset button.

(5) A series of three-digit numeric failure messages may appear in the odometer display, depending upon the failure mode. If a failure message appears, see the Instrument Cluster Failure Message chart for the description and proper correction. If no failure message appears, the self-diagnostic test will proceed as described in Step 6.

| INSTRUMENT CLUSTER FAILURE MESSAGE | | |
|------------------------------------|--|--|
| Message | Description | Correction |
| 110 | A failure has been identified in the cluster CPU, RAM, or EEPROM. | 1. Replace the faulty cluster. |
| 900 | The CCD data bus is not operational. | 1. Check the CCD data bus connections at the cluster. 2. Check the cluster fuses. 3. Check the CCD data bus bias. 4. Check the CCD data bus voltage. 5. Check the CCD data bus terminations. |
| 920 | The cluster is not receiving a vehicle speed message from the PCM. | 1. Check the PCM software level and reflash if required. 2. Use a DRBIII® scan tool to verify that the vehicle speed message is being sent by the PCM. |
| 921 | The cluster is not receiving a distance pulse message from the PCM. | 1. Check the PCM software level and reflash if required. 2. Use a DRBIII® scan tool to verify that the distance pulse message is being sent by the PCM. |
| 940 | The cluster is not receiving an airbag lamp-on message from the ACM. | 1. Check the CCD data bus connections at the ACM. 2. Check the ACM fuse. |
| 950 | The cluster is not receiving an ABS lamp-on message from the CAB. | 1. Check the CCD data bus connections at the CAB. 2. Check the CAB fuse. |
| 960 | The cluster is not receiving a PRND21 message from the TCM. | 1. Check the CCD data bus connections at the TCM. 2. Check the TCM fuse. |
| 999 | An error has been discovered. | 1. Record the failure message. 2. Depress the trip odometer reset button to continue the Self-Diagnostic Test. |

DIAGNOSIS AND TESTING (Continued)

(6) The instrument cluster will begin the odometer walking segment test. This test will require the operator to visually inspect each odometer segment as it is displayed to determine a pass or fail condition. First, all of the segments will be illuminated at once; then, each individual segment of the odometer display will be illuminated in sequence. If any segment in the display fails to illuminate, repeat the test to confirm the failure. If the failure is confirmed, replace the faulty instrument cluster. Following the odometer walking segment test, the self-diagnostic test will automatically proceed as described in Step 7.

(7) The instrument cluster will perform a bulb check of each indicator lamp that the instrument cluster circuitry controls. If an individual amber indicator lamp does not illuminate during this test, the instrument cluster should be removed. However, check that the incandescent lamp bulb is not faulty and that the bulb holder is properly installed on the instrument cluster electronic circuit board before considering instrument cluster replacement. If the bulb and bulb holder check OK, replace the faulty instrument cluster. Each of the red indicators are illuminated by a Light Emitting Diode (LED). If an LED fails to illuminate during this test, the instrument cluster must be replaced. Following the bulb check test, the self-diagnostic test will automatically proceed as described in Step 8.

(8) The instrument cluster will perform a gauge actuator test. In this test the instrument cluster circuitry positions each of the gauge needles at three different calibration points, then returns the gauge needles to their relaxed positions. If an individual gauge does not respond properly, or does not respond at all during the gauge actuator test, the instrument cluster should be removed. However, check that the gauge terminal pins are properly inserted through the spring-clip terminal pin receptacles on the instrument cluster electronic circuit board before considering instrument cluster replacement. If the gauge terminal connections are OK, replace the faulty instrument cluster.

(9) The self-diagnostic test is now completed. The instrument cluster will automatically exit the self-diagnostic mode and return to normal operation at the completion of the test, if the ignition switch is turned to the Off position during the test, or if a vehicle speed message indicating that the vehicle is moving is received from the PCM on the CCD data bus during the test.

(10) Go back to Step 1 to repeat the test, if required.

HARD WIRED LAMP DIAGNOSIS

Each of the lamps found in this section depends upon a hard wired circuit input to the instrument cluster for proper operation. The following procedures will help to diagnose conditions that may cause an inoperative hard wired lamp circuit condition.

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

BRAKE WARNING LAMP

The diagnosis found here addresses an inoperative brake warning lamp condition. If the brake warning lamp stays on with the ignition switch in the On position and the park brake released, or comes on while driving, refer to **Rear Wheel Antilock** for vehicles equipped with a rear wheel anti-lock brake system, or refer to **Antilock Brakes** for vehicles equipped with a four wheel anti-lock brake system in the Diagnosis and Testing section of Group 5 - Brakes for further diagnosis. If no brake system problem is found, the following procedure will help locate a faulty park brake switch or park brake switch sense circuit. For complete circuit diagrams, refer to **Instrument Cluster** in the Contents of Group 8W - Wiring Diagrams.

(1) Check the fused ignition switch output (run/start) fuse in the junction block. If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run/start) fuse in the junction block. If OK, go to Step 3. If not OK, repair the open fused ignition switch output (run/start) circuit to the ignition switch as required.

(3) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Disconnect the wire harness connector at the park brake switch. With the park brake released, check for continuity between the park brake switch terminal and a good ground. There should be no continuity. If OK, go to Step 4. If not OK, adjust or replace the faulty park brake switch.

(4) Remove the instrument cluster. With the park brake switch wire harness connector still disconnected, check for continuity between the park brake switch sense circuit cavity of the park brake switch wire harness connector and a good ground. There

DIAGNOSIS AND TESTING (Continued)

should be no continuity. If OK, go to Step 5. If not OK, repair the shorted park brake switch sense circuit as required.

(5) Check for continuity between the park brake switch sense circuit cavities of the instrument cluster wire harness connector A and the park brake switch wire harness connector. There should be continuity. If OK, refer to **Instrument Cluster - Preliminary Diagnosis** in the Diagnosis and Testing section of this group for further testing of the brake warning lamp and the instrument cluster circuitry. If not OK, repair the open park brake switch sense circuit as required.

CLUSTER ILLUMINATION LAMP

The diagnosis found here addresses an inoperative instrument cluster illumination lamp condition. If the problem being diagnosed includes inoperative exterior lighting controlled by the headlamp switch, that system needs to be repaired first. If the exterior lamps controlled by the headlamp switch are inoperative, refer to **Headlamp Diagnosis** in the Diagnosis and Testing section of Group 8L - Lamps for diagnosis. If no exterior lighting system problems are found, the following procedure will help locate a short or open in the cluster illumination lamp circuit. If the problem being diagnosed involves a lack of dimming control for the odometer/trip odometer Vacuum Fluorescent Display (VFD), but all of the other cluster illumination lamps can be dimmed, repair the open headlamp switch output circuit input to the instrument cluster. For complete circuit diagrams, refer to **Instrument Cluster** in the Contents of Group 8W - Wiring Diagrams.

(1) Check the panel lamps dimmer fuse in the junction block. If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Turn the park lamps on with the headlamp switch. Rotate the panel lamps dimmer thumbwheel on the headlamp switch upward to just before the interior lamps detent. Check for battery voltage at the panel lamps dimmer fuse in the junction block. Rotate the panel lamps dimmer thumbwheel downward while observing the test voltmeter. The reading should go from battery voltage to zero volts. If OK, go to Step 3. If not OK, repair the open panel lamps dimmer switch signal circuit to the headlamp switch as required. If the circuit tests OK, refer to **Headlamp Diagnosis** in the Diagnosis and Testing section of Group 8L - Lamps to diagnose the headlamp switch.

(3) Disconnect and isolate the battery negative cable. Remove the instrument cluster. Turn the headlamp switch off. Remove the panel lamps dimmer fuse from the junction block. Probe the fused panel

lamps dimmer switch signal circuit cavity of the instrument cluster wire harness connector B. Check for continuity to a good ground. There should be no continuity. If OK, go to Step 4. If not OK, repair the shorted fused panel lamps dimmer switch signal circuit as required.

(4) Install the panel lamps dimmer fuse in the junction block. Connect the battery negative cable. Turn the park lamps on with the headlamp switch. Rotate the panel lamps dimmer thumbwheel on the headlamp switch upward to just before the interior lamps detent. Check for battery voltage at the fused panel lamps dimmer switch signal circuit cavity of the instrument cluster wire harness connector B. If OK, replace the faulty cluster illumination lamp bulb(s) and bulb holder(s). If not OK, repair the open fused panel lamps dimmer switch signal circuit as required.

FOUR-WHEEL DRIVE LOCK INDICATOR LAMP

The diagnosis found here addresses an inoperative four-wheel drive indicator lamp condition. If the problem being diagnosed is related to lamp accuracy, be certain to confirm that the problem is with the lamp or switch and not with a damaged or inoperative transfer case or transfer case linkage. Refer to **NV231 Diagnosis** or **NV242 Diagnosis** in the Diagnosis and Testing section of Group 21 - Transmission for more information. If no transfer case problem is found, the following procedure will help locate a short or open in the indicator lamp circuit. For complete circuit diagrams, refer to **Instrument Cluster** in the Contents of Group 8W - Wiring Diagrams.

(1) Check the fused ignition switch output (run/start) fuse in the junction block. If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run/start) fuse in the junction block. If OK, go to Step 3. If not OK, repair the open fused ignition switch output (run/start) circuit to the ignition switch as required.

(3) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Disconnect the transfer case switch wire harness connector. Check for continuity between the ground circuit cavity of the transfer case switch wire harness connector and a good ground. There should be continuity. If OK, go to Step 4. If not OK, repair the open ground circuit to ground as required.

(4) Connect the battery negative cable. Turn the ignition switch to the On position. Install a jumper wire between the four wheel drive lock indicator lamp driver circuit cavity of the transfer case switch wire harness connector and a good ground. The four-

DIAGNOSIS AND TESTING (Continued)

wheel drive lock indicator lamp should light. If OK, replace the faulty transfer case switch. If not OK, go to Step 5.

(5) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Disconnect the wire harness connector at the Controller Anti-Lock Brake (CAB). Remove the instrument cluster. With the transfer case switch wire harness connector still disconnected, check for continuity between the four wheel drive lock indicator lamp driver circuit cavity of the instrument cluster wire harness connector B and a good ground. There should be no continuity. If OK, go to Step 6. If not OK, repair the shorted four wheel drive lock indicator lamp driver circuit as required.

(6) Check for continuity between the four wheel drive lock indicator lamp driver circuit cavities of the instrument cluster wire harness connector B and the transfer case switch wire harness connector. There should be continuity. If OK, replace the faulty bulb. If not OK, repair the open four wheel drive lock indicator lamp driver circuit as required.

HEADLAMP HIGH BEAM INDICATOR LAMP

The diagnosis found here addresses an inoperative headlamp high beam indicator lamp condition. If the problem being diagnosed is related to inoperative headlamp high beams, refer to **Headlamp Diagnosis** in the Diagnosis and Testing section of Group 8L - Lamps for diagnosis of the headlamp system. If no headlamp system problems are found, the following procedure will help locate an open in the high beam indicator lamp circuit. For complete circuit diagrams, refer to **Instrument Cluster** in the Contents of Group 8W - Wiring Diagrams.

(1) Disconnect and isolate the battery negative cable. Remove the instrument cluster.

(2) Connect the battery negative cable. Turn the headlamps on and select the high beams with the multi-function switch stalk. Check for battery voltage at the high beam indicator driver circuit cavity of the instrument cluster wire harness connector B. If OK, replace the faulty bulb. If not OK, repair the open high beam indicator driver circuit to the headlamp dimmer (multi-function) switch as required.

LOW WASHER FLUID WARNING LAMP

The diagnosis found here addresses an inoperative low washer fluid warning lamp condition. If the problem being diagnosed is related to lamp accuracy, be certain to confirm that the problem is with the lamp or washer fluid level sensor and not with a damaged or empty washer fluid reservoir. Inspect the reservoir for proper fluid level and signs of damage or distortion that could affect sensor performance before you proceed with lamp diagnosis. Refer to **Washer Sys-**

tem in the Diagnosis and Testing section of Group 8K - Wiper and Washer Systems for more information. For complete circuit diagrams, refer to **Instrument Cluster** in the Contents of Group 8W - Wiring Diagrams.

(1) Check the fused ignition switch output (run/start) fuse in the junction block. If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run/start) fuse in the junction block. If OK, go to Step 3. If not OK, repair the open fused ignition switch output (run/start) circuit to the ignition switch as required.

(3) Turn the ignition switch to the Off position. Disconnect the wire harness connector from the washer fluid level sensor. Install a jumper wire between the two cavities of the washer fluid level sensor wire harness connector. Turn the ignition switch to the On position. About thirty seconds after the ignition switch is turned to the On position, the low washer fluid warning lamp should light. Turn the ignition switch to the Off position. Remove the jumper wire from the washer fluid level sensor connector. Turn the ignition switch to the On position and, following the cluster bulb check sequence, the lamp should go off. If OK, replace the faulty washer fluid level sensor. If not OK, go to Step 4.

NOTE: If the ignition switch is in the On position when the washer fluid level sensor circuit is grounded, the instrument cluster programming will double the low washer fluid warning lamp illumination delay time from thirty seconds to about sixty seconds. This feature is intended to compensate for the effects of washer fluid sloshing within the washer fluid reservoir while the vehicle is being driven.

(4) Turn the ignition switch to the Off position. Check for continuity between the ground circuit cavity of the washer fluid level sensor wire harness connector and a good ground. There should be continuity. If OK, go to Step 5. If not OK, repair the open ground circuit to ground as required.

(5) Disconnect and isolate the battery negative cable. Remove the instrument cluster. With the washer fluid level sensor wire harness connector still disconnected, check for continuity between the low washer fluid level sense circuit cavity of the instrument cluster wire harness connector B and a good ground. There should be no continuity. If OK, go to Step 6. If not OK, repair the shorted low washer fluid level sense circuit as required.

(6) Check for continuity between the low washer fluid level sense circuit cavities of the instrument

DIAGNOSIS AND TESTING (Continued)

cluster wire harness connector B and the washer fluid level sensor wire harness connector. There should be continuity. If OK, replace the faulty bulb. If not OK, repair the open low washer fluid level sense circuit as required.

SECURITY LAMP

The diagnosis found here addresses an inoperative security lamp condition. If the problem being diagnosed is an inaccurate security lamp, refer to **Vehicle Theft Security System** in the Diagnosis and Testing section of Group 8Q - Vehicle Theft/Security Systems for diagnosis. For complete circuit diagrams, refer to **Instrument Cluster** in the Contents of Group 8W - Wiring Diagrams.

(1) Check the fused B(+) fuse in the junction block. If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Check for battery voltage at the fused B(+) fuse in the junction block. If OK, go to Step 3. If not OK, repair the open fused B(+) circuit to the battery as required.

(3) Disconnect and isolate the battery negative cable. Remove the Central Timer Module (CTM). Disconnect the CTM wire harness connectors. Connect the battery negative cable. Install a jumper wire between the VTSS indicator driver circuit cavity of the 18-way CTM wire harness connector and a good ground. The security lamp should light. If OK, use a DRB scan tool and the proper Diagnostic Procedures manual to diagnose the Vehicle Theft Security System (VTSS) and the CTM. If not OK, go to Step 4.

(4) Disconnect and isolate the battery negative cable. Remove the instrument cluster. Check for continuity between the fused B(+) circuit cavity of the instrument cluster wire harness connector A and the fused B(+) fuse in the junction block. There should be continuity. If OK, go to Step 5. If not OK, repair the open fused B(+) circuit to the fuse in the junction block as required.

(5) Check for continuity between the VTSS indicator driver circuit cavities of the instrument cluster wire harness connector A and the 18-way CTM wire harness connector. There should be continuity. If OK, refer to **Instrument Cluster - Self-Diagnostic Test** in the Diagnosis and Testing section of this group for further diagnosis of the security lamp and the instrument cluster circuitry. If not OK, repair the open VTSS indicator driver circuit as required.

TURN SIGNAL INDICATOR LAMP

The diagnosis found here addresses an inoperative turn signal indicator lamp condition. For any other turn signal problem, refer to **Turn Signal and Hazard Warning Systems** in the Diagnosis and Testing

section of Group 8J - Turn Signal and Hazard Warning Systems for further diagnosis. If no turn signal or hazard warning system problem is found, the following procedure will help locate a short or open in the indicator lamp circuit. For complete circuit descriptions, refer to **Instrument Cluster** in the Contents of Group 8W - Wiring Diagrams.

(1) Disconnect and isolate the battery negative cable. Remove the instrument cluster.

(2) Connect the battery negative cable. Activate the hazard warning system by moving the hazard warning switch button to the On position. Check for battery voltage at the inoperative (right or left) turn signal circuit cavity of the instrument cluster wire harness connector B. There should be a switching (on and off) battery voltage signal. If OK, replace the faulty (right or left) turn signal indicator lamp bulb. If not OK, repair the open (right or left) turn signal circuit to the turn signal/hazard warning (multi-function) switch as required.

CIGAR LIGHTER

For complete circuit diagrams, refer to **Cigar Lighter** in the Component Index of Group 8W - Wiring Diagrams.

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Check the fused ignition switch output (run/accessory) fuse in the junction block. If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run/accessory) fuse in the junction block. If OK, go to Step 3. If not OK, repair the open fused ignition switch output (run/accessory) circuit to the ignition switch as required.

(3) Turn the ignition switch to the Off position. Remove the cigar lighter knob and element from the cigar lighter receptacle. Check for continuity between the inside circumference of the cigar lighter receptacle and a good ground. There should be continuity. If OK, go to Step 4. If not OK, go to Step 5.

(4) Turn the ignition switch to the On position. Check for battery voltage at the insulated contact located at the back of the cigar lighter receptacle. If OK, replace the faulty cigar lighter knob and element. If not OK, go to Step 5.

DIAGNOSIS AND TESTING (Continued)

(5) Turn the ignition switch to the Off position. Disconnect and isolate the battery negative cable. Remove the instrument panel lower bezel. Check for continuity between the ground circuit cavity of the cigar lighter wire harness connector and a good ground. There should be continuity. If OK, go to Step 6. If not OK, repair the open ground circuit to ground as required.

(6) Connect the battery negative cable. Turn the ignition switch to the On position. Check for battery voltage at the fused ignition switch output (run/accessory) circuit cavity of the cigar lighter wire harness connector. If OK, replace the faulty cigar lighter receptacle. If not OK, repair the open fused ignition switch output (run/accessory) circuit to the junction block fuse as required.

POWER OUTLET

For complete circuit diagrams, refer to **Power Outlet** in the Component Index of Group 8W - Wiring Diagrams.

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

(1) Check the fused B(+) fuse in the Power Distribution Center (PDC). If OK, go to Step 2. If not OK, repair the shorted circuit or component as required and replace the faulty fuse.

(2) Check for battery voltage at the fused B(+) fuse in the PDC. If OK, go to Step 3. If not OK, repair the open fused B(+) circuit to the battery as required.

(3) Remove the plastic protective cap from the power outlet receptacle. Check for continuity between the inside circumference of the power outlet receptacle and a good ground. There should be continuity. If OK, go to Step 4. If not OK, go to Step 5.

(4) Check for battery voltage at the insulated contact located at the back of the power outlet receptacle. If not OK, go to Step 5.

(5) Disconnect and isolate the battery negative cable. Remove the instrument panel lower bezel. Check for continuity between the ground circuit cavity of the power outlet wire harness connector and a good ground. There should be continuity. If OK, go to Step 6. If not OK, repair the open ground circuit to ground as required.

(6) Connect the battery negative cable. Check for battery voltage at the fused B(+) circuit cavity of the power outlet wire harness connector. If OK, replace

the faulty power outlet receptacle. If not OK, repair the open fused B(+) circuit to the PDC fuse as required.

REMOVAL AND INSTALLATION

CLUSTER BEZEL

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

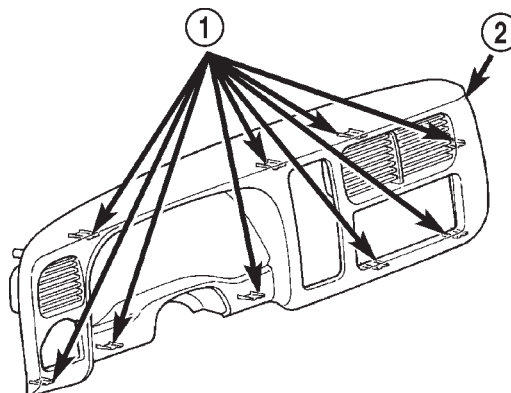
REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) If the vehicle is equipped with an automatic transmission, turn the ignition switch to the Unlock position, set the parking brake, and place the automatic transmission gear selector lever in the Low position.

(3) If the vehicle is so equipped, set the tilt steering column in its lowest position.

(4) Using a trim stick or another suitable wide flat-bladed tool, gently pry around the perimeter of the cluster bezel to disengage the snap clips from their receptacles in the instrument panel (Fig. 1).



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Fig. 1 Cluster Bezel Remove/Install

- 1 - SNAP CLIP RETAINERS
2 - CLUSTER BEZEL

(5) Remove the cluster bezel from the instrument panel.

REMOVAL AND INSTALLATION (Continued)

INSTALLATION

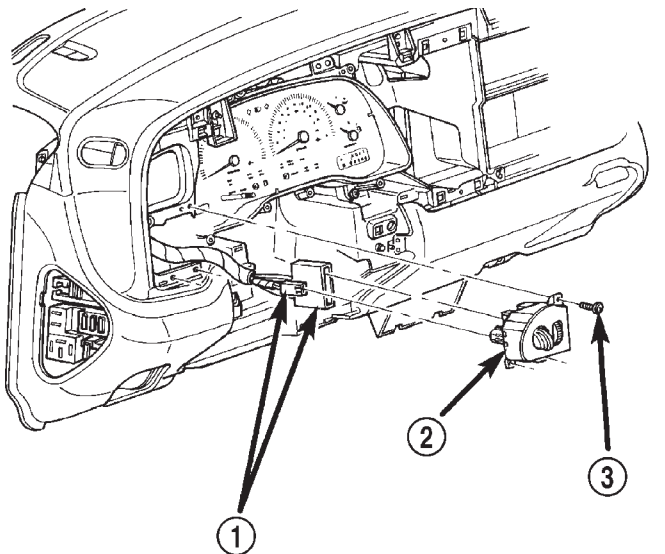
- (1) Position the cluster bezel to the instrument panel.
- (2) Align the snap clips on the cluster bezel with the receptacles in the instrument panel.
- (3) Press firmly on the cluster bezel over each of the snap clip locations until each of the snap clips is fully engaged in its receptacle.
- (4) Reconnect the battery negative cable.

HEADLAMP SWITCH

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

REMOVAL

- (1) Disconnect and isolate the battery negative cable.
- (2) Remove the cluster bezel from the instrument panel. Refer to **Cluster Bezel** in the Removal and Installation section of this group for the procedures.
- (3) Remove the three screws that secure the headlamp switch to the instrument panel (Fig. 2).



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Fig. 2 Headlamp Switch Remove/Install

- 1 - INSTRUMENT PANEL WIRE HARNESS CONNECTORS
- 2 - HEADLAMP SWITCH
- 3 - SCREW (3)

(4) Pull the headlamp switch away from the instrument panel far enough to access the instrument panel wire harness connectors.

(5) Disconnect the two instrument panel wire harness connectors from the headlamp switch connector receptacles.

(6) Remove the headlamp switch from the instrument panel.

INSTALLATION

- (1) Position the headlamp switch to the instrument panel.
- (2) Reconnect the two instrument panel wire harness connectors to the headlamp switch connector receptacles.
- (3) Install the headlamp switch into the instrument panel.
- (4) Install and tighten the three screws that secure the headlamp switch to the instrument panel. Tighten the screws to 2.2 N·m (20 in. lbs.).
- (5) Install the cluster bezel onto the instrument panel. Refer to **Cluster Bezel** in the Removal and Installation section of this group for the procedures.
- (6) Reconnect the battery negative cable.

INSTRUMENT CLUSTER

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

REMOVAL

- (1) Disconnect and isolate the battery negative cable.
- (2) Remove the cluster bezel from the instrument panel. Refer to **Cluster Bezel** in the index of this service manual for the location of the proper cluster bezel removal procedures.
- (3) Remove the four screws that secure the instrument cluster to the instrument panel (Fig. 3).
- (4) If the vehicle is equipped with an automatic transmission, place the automatic transmission gear selector lever in the Park position.
- (5) Pull the instrument cluster rearward far enough to disengage the two self-docking instrument panel wire harness connectors from the connector receptacles on the back of the cluster housing.
- (6) If the vehicle is equipped with a mechanical automatic transmission gear selector indicator, remove the gear selector indicator from the back of

REMOVAL AND INSTALLATION (Continued)

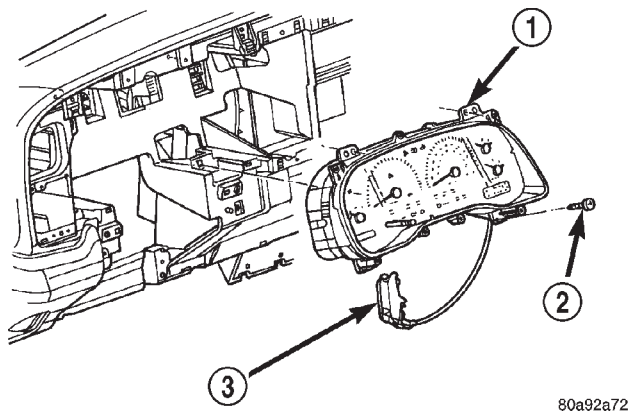


Fig. 3 Instrument Cluster Remove/Install

- 1 - CLUSTER
- 2 - SCREW
- 3 - PRNDL ADJUSTER AND CABLE

the cluster housing. Refer to **Gear Selector Indicator** in the index of this service manual for the location of the proper gear selector indicator removal procedures.

(7) Remove the instrument cluster from the instrument panel.

INSTALLATION

(1) Position the instrument cluster to the instrument panel.

(2) If the vehicle is equipped with a mechanical automatic transmission gear selector indicator, install the gear selector indicator onto the back of the cluster housing. Refer to **Gear Selector Indicator** in the index of this service manual for the location of the proper gear selector indicator installation procedures.

(3) Align the instrument cluster with the cluster opening in the instrument panel and push the cluster firmly and evenly into place. The instrument panel has two self-docking wire harness connectors that will be automatically aligned with, and connected to the cluster connector receptacles when the cluster is installed in the instrument panel.

(4) Install and tighten the four screws that secure the instrument cluster to the instrument panel. Tighten the screws to 2.2 N·m (20 in. lbs.).

(5) Install the cluster bezel onto the instrument panel. Refer to **Cluster Bezel** in the index of this service manual for the location of the proper cluster bezel installation procedures.

(6) Reconnect the battery negative cable.

NOTE: Certain indicator lamps in this instrument cluster are programmable. This feature allows those indicator lamps to be activated or deactivated with a DRBIII® scan tool through the instrument cluster electronic circuitry for compatibility with certain

optional equipment. If a new instrument cluster is being installed, use a DRBIII® scan tool to program the instrument cluster with the proper vehicle equipment option settings to activate and/or deactivate the cruise-on indicator lamp, the overdrive-off indicator lamp, the transmission oil temperature warning lamp, and the upshift indicator lamp.

INSTRUMENT CLUSTER COMPONENTS

Some of the components for the instrument cluster used in this vehicle are serviced individually. The serviced components include: the incandescent instrument cluster indicator lamp and illumination lamp bulbs (including the integral bulb holders), the cluster lens and hood unit, the instrument cluster housing rear cover, and the instrument cluster housing (including the trip odometer reset knob, the cluster mask, the gauges and the instrument cluster electronic circuit board). Following are the service procedures for the instrument cluster components.

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REMOVAL

CLUSTER BULB

This procedure applies to each of the incandescent cluster illumination lamp or indicator lamp bulb and bulb holder units. However, the illumination lamps and the indicator lamps use different bulb and bulb holder unit sizes. They must never be interchanged. Be certain that any bulb and bulb holder unit removed from the cluster electronic circuit board is reinstalled in the correct position. Always use the correct bulb size and type for replacement. An incorrect bulb size or type may overheat and cause damage to the instrument cluster, the electronic circuit board and/or the gauges.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the instrument cluster from the instrument panel. Refer to **Instrument Cluster** in the Removal and Installation section of this group for the procedures.

(3) Turn the bulb holder counterclockwise about sixty degrees on the cluster electronic circuit board.

REMOVAL AND INSTALLATION (Continued)

(4) Pull the bulb and bulb holder unit straight back to remove it from the bulb mounting hole in the cluster electronic circuit board (Fig. 4).

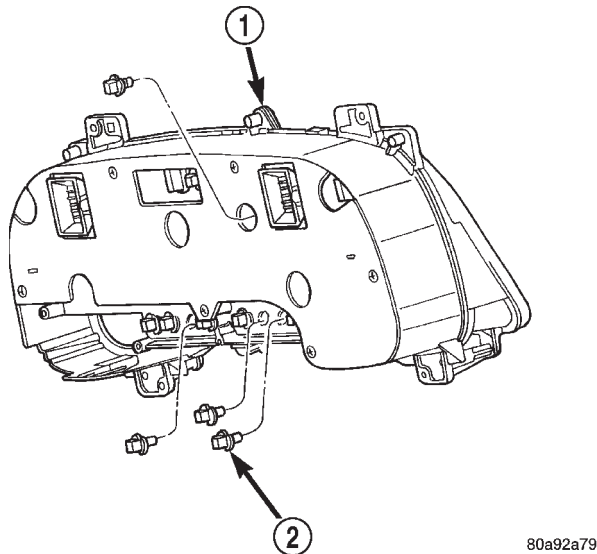


Fig. 4 Cluster Bulb Remove/Install

- 1 - INSTRUMENT CLUSTER
2 - BULB AND HOLDER

CLUSTER LENS AND HOOD

(1) Disconnect and isolate the battery negative cable.

(2) Remove the instrument cluster from the instrument panel. Refer to **Instrument Cluster** in the Removal and Installation section of this group for the procedures.

(3) Remove the seven screws that secure the lens and hood unit to the cluster housing (Fig. 5).

(4) Gently pull the lens and hood unit away from the cluster housing.

CAUTION: Do not touch the face of the gauge mask or the back of the cluster lens with your finger. It will leave a permanent finger print.

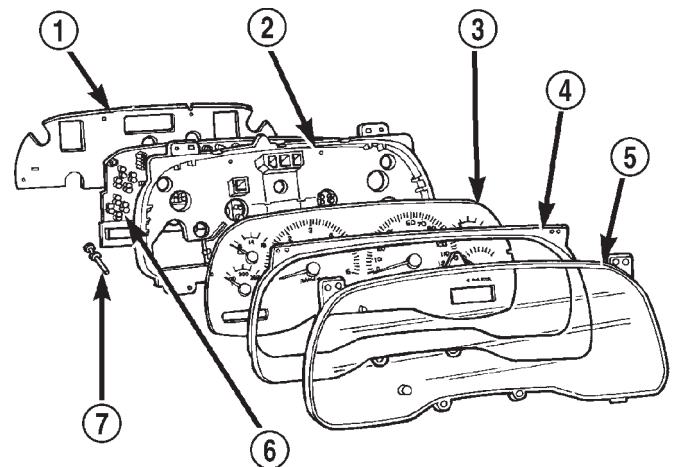
CLUSTER HOUSING REAR COVER

(1) Disconnect and isolate the battery negative cable.

(2) Remove the instrument cluster from the instrument panel. Refer to **Instrument Cluster** in the Removal and Installation section of this group for the procedures.

(3) Remove the six screws that secure the rear cover to the back of the cluster housing (Fig. 6).

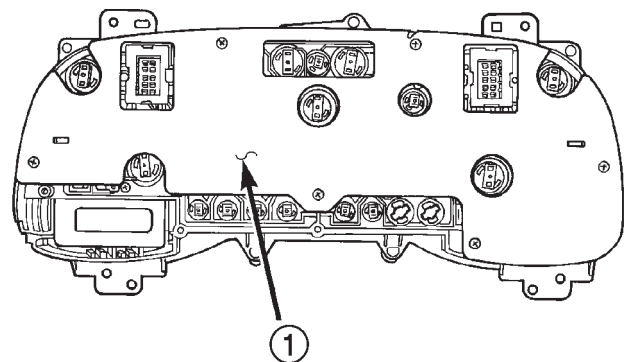
(4) Remove the rear cover from the back of the cluster housing.



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Fig. 5 Instrument Cluster Components

- 1 - COVER
2 - HOUSING
3 - MASK AND GAUGES
4 - HOOD
5 - LENS
6 - CIRCUIT BOARD
7 - ODOMETER RESET BUTTON



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Fig. 6 Cluster Housing Rear Cover Remove/Install

- 1 - REAR CLUSTER HOUSING COVER

CLUSTER HOUSING

(1) Disconnect and isolate the battery negative cable.

(2) Remove the instrument cluster from the instrument panel. Refer to **Instrument Cluster** in the Removal and Installation section of this group for the procedures.

(3) Remove all of the incandescent illumination lamp and indicator lamp bulb and bulb holder units from the cluster electronic circuit board. Refer to **Instrument Cluster Components - Cluster Bulbs** in the Removal and Installation section of this group for the procedures.

(4) Remove the lens and hood unit from the cluster housing. Refer to **Instrument Cluster Compo-**

REMOVAL AND INSTALLATION (Continued)

nents - Cluster Lens and Hood in the Removal and Installation section of this group for the procedures.

(5) Remove the rear cover from the cluster housing. Refer to **Instrument Cluster Components - Cluster Housing Rear Cover** in the Removal and Installation section of this group for the procedures.

INSTALLATION

CLUSTER BULB

This procedure applies to each of the incandescent cluster illumination lamp or indicator lamp bulb and bulb holder units. However, the illumination lamps and the indicator lamps use different bulb and bulb holder unit sizes. They must never be interchanged. Be certain that any bulb and bulb holder unit removed from the cluster electronic circuit board is reinstalled in the correct position.

CAUTION: Always use the correct bulb size and type for replacement. An incorrect bulb size or type may overheat and cause damage to the instrument cluster, the electronic circuit board and/or the gauges.

(1) Insert the bulb and bulb holder unit straight into the correct bulb mounting hole in the cluster electronic circuit board.

(2) With the bulb holder fully seated against the cluster electronic circuit board, turn the bulb holder clockwise about sixty degrees to lock it into place.

(3) Install the instrument cluster onto the instrument panel. Refer to **Instrument Cluster** in the Removal and Installation section of this group for the procedures.

(4) Reconnect the battery negative cable.

CLUSTER LENS AND HOOD

(1) Align the lens and hood unit with the cluster housing.

(2) Press firmly and evenly on the lens and hood unit to install it onto the cluster housing.

(3) Install and tighten the seven screws that secure the lens and hood unit to the cluster housing. Tighten the screws to 2.2 N·m (20 in. lbs.).

(4) Install the instrument cluster onto the instrument panel. Refer to **Instrument Cluster** in the Removal and Installation section of this group for the procedures.

(5) Reconnect the battery negative cable.

CLUSTER HOUSING REAR COVER

(1) Position the rear cover to the back of the cluster housing.

(2) Install and tighten the six screws that secure the rear cover to the back of the cluster housing. Tighten the screws to 2.2 N·m (20 in. lbs.).

(3) Install the instrument cluster onto the instrument panel. Refer to **Instrument Cluster** in the Removal and Installation section of this group for the procedures.

(4) Reconnect the battery negative cable.

CLUSTER HOUSING

(1) Install the rear cover onto the cluster housing. Refer to **Instrument Cluster Components - Cluster Housing Rear Cover** in the Removal and Installation section of this group for the procedures.

(2) Install the lens and hood unit onto the cluster housing. Refer to **Instrument Cluster Components - Cluster Lens and Hood** in the Removal and Installation section of this group for the procedures.

(3) Install all of the incandescent illumination lamp and indicator lamp bulb and bulb holder units onto the cluster electronic circuit board. Refer to **Instrument Cluster Components - Cluster Bulbs** in the Removal and Installation section of this group for the procedures.

(4) Install the instrument cluster onto the instrument panel. Refer to **Instrument Cluster** in the Removal and Installation section of this group for the procedures.

(5) Reconnect the battery negative cable.

STEERING COLUMN OPENING COVER

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the three screws that secure the lower edge of the steering column opening cover to the lower instrument panel reinforcement (Fig. 7).

(3) Using a trim stick or another suitable wide flat-bladed tool, gently pry the upper edge of the steering column opening cover just below the cluster bezel on each side of the steering column away from the instrument panel far enough to disengage the snap clip retainers from the receptacles in the instrument panel.

REMOVAL AND INSTALLATION (Continued)

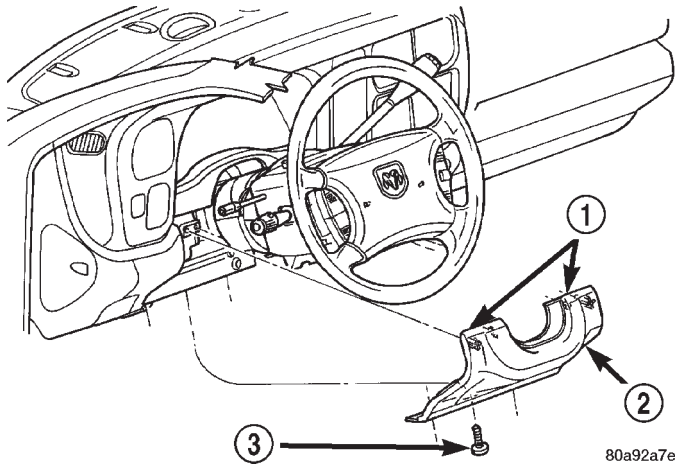


Fig. 7 Steering Column Opening Cover Remove/Install

- 1 - SNAP CLIPS
2 - COVER
3 - SCREW

(4) Remove the steering column opening cover from the instrument panel.

INSTALLATION

(1) Position the steering column opening cover to the instrument panel.

(2) Align the snap clip retainers on the steering column opening cover with the receptacles in the instrument panel.

(3) Press firmly on the steering column opening cover over the snap clip locations until each of the snap clips is fully engaged in its receptacle.

(4) Install and tighten the three screws that secure the lower edge of the steering column opening cover to the lower instrument panel reinforcement. Tighten the screws to 2.2 N·m (20 in. lbs.).

(5) Reconnect the battery negative cable.

GEAR SELECTOR INDICATOR

The following service procedures apply only to the mechanical gear selector indicator. The electronic gear selector indicator is integral to the instrument cluster and can only be serviced by replacement of the instrument cluster unit.

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REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the instrument cluster from the instrument panel. Refer to **Instrument Cluster** in the Removal and Installation section of this group for the procedures.

(3) Remove the two screws that secure the gear selector indicator mechanism to the back of the instrument cluster housing (Fig. 8).

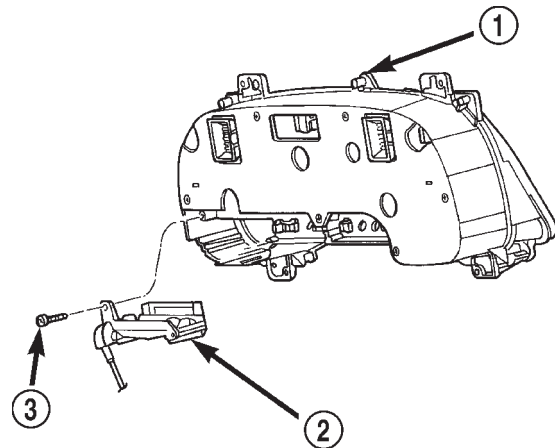


Fig. 8 Gear Selector Indicator Remove/Install

- 1 - INSTRUMENT CLUSTER
2 - GEAR SELECTOR INDICATOR
3 - SCREW

(4) Remove the gear selector indicator mechanism from the back of the instrument cluster housing.

(5) Remove the steering column opening cover from the instrument panel. Refer to **Steering Column Opening Cover** in the Removal and Installation section of this group for the procedures.

(6) Disengage the loop end of the gear selector indicator cable from the lever on the left side of the steering column (Fig. 9).

(7) Squeeze the sides of the plastic adjuster and bracket unit to disengage the tabs that secure it to the sides of the steering column window.

(8) Remove the gear selector indicator mechanism and cable unit from the instrument panel.

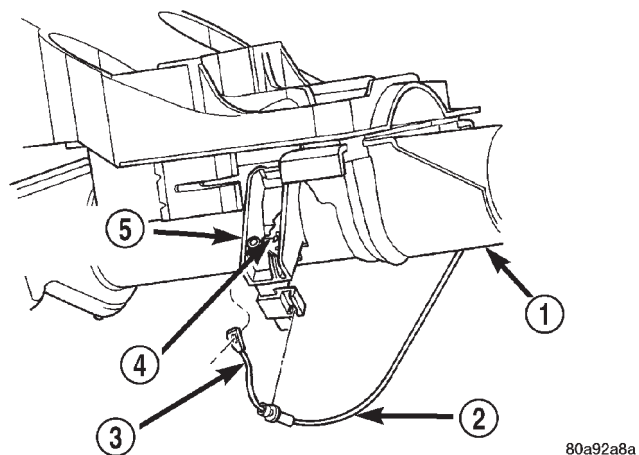
INSTALLATION

(1) Position the gear selector indicator mechanism and cable unit to the instrument panel.

(2) Squeeze the sides of the plastic adjuster and bracket unit and engage the tabs that secure it with the sides of the steering column window.

(3) Engage the loop end of the gear selector indicator cable onto the lever on the left side of the steering column (Fig. 9).

REMOVAL AND INSTALLATION (Continued)

**Fig. 9 Gear Selector Indicator Cable Remove/Install**

- 1 - STEERING COLUMN
- 2 - CABLE
- 3 - LOOP END
- 4 - LEVER
- 5 - ADJUSTER AND BRACKET

(4) Position the gear selector indicator mechanism onto the back of the instrument cluster housing.

(5) Install and tighten the two screws that secure the gear selector indicator mechanism to the back of the instrument cluster housing. Tighten the screws to 2.2 N·m (20 in. lbs.).

(6) Install the instrument cluster onto the instrument panel. Refer to **Instrument Cluster** in the Removal and Installation section of this group for the procedures.

(7) Check the gear selector indicator for proper calibration. If adjustment is needed, refer to **Steering Column** in the Removal and Installation section of Group 19 - Steering for the gear selector indicator cable (PRNDL) adjustment procedure.

(8) Install the steering column opening cover onto the instrument panel. Refer to **Steering Column Opening Cover** in the Removal and Installation section of this group for the procedures.

(9) Reconnect the battery negative cable.

PARK BRAKE RELEASE HANDLE

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

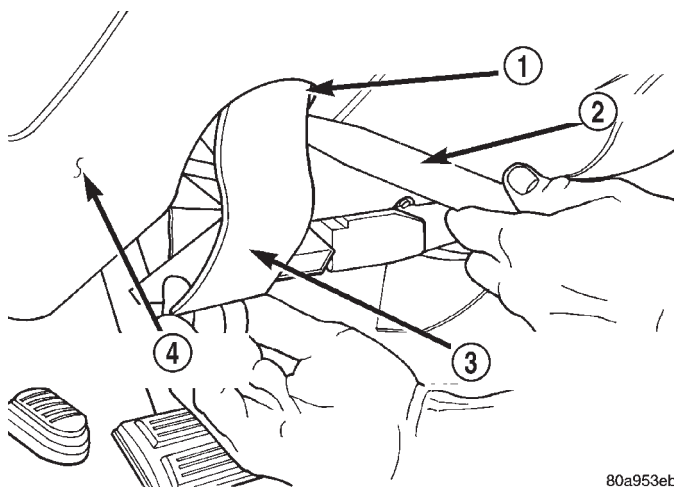
REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Reach under the driver side outboard end of the instrument panel to access and unsnap the plastic retainer clip that secures the park brake release linkage rod to the lever on the back side of the park brake release handle.

(3) Disengage the park brake release linkage rod end from the lever on the back of the park brake release handle.

(4) Using a trim stick or another suitable wide flat-bladed tool, gently pry one of the park brake handle hinge tabs away from its pivot pin on the instrument panel (Fig. 10).

**Fig. 10 Park Brake Release Handle Remove/Install**

- 1 - INSERT BETWEEN HINGE TAB AND PIVOT PIN
- 2 - TRIM STICK
- 3 - PARK BRAKE RELEASE HANDLE
- 4 - INSTRUMENT PANEL

(5) While prying the park brake release handle hinge tab with one hand, use the other hand to pull the handle firmly down and away from the pivot pin.

(6) Remove the park brake release handle from the instrument panel.

INSTALLATION

(1) Position the park brake release handle to the instrument panel.

(2) Engage one of the park brake release handle hinge tabs with one of the pivot pins on the instrument panel.

(3) Align the second park brake release handle hinge tab hinge over the second pivot pin on the instrument panel.

(4) Press firmly on the park brake release handle over the second hinge tab until it snaps over the second pivot pin on the instrument panel.

REMOVAL AND INSTALLATION (Continued)

(5) Reach under the driver side outboard end of the instrument panel to access and engage the park brake release linkage rod end from the lever on the back of the park brake release handle.

(6) Snap the plastic retainer clip that secures the park brake release linkage rod to the lever on the back side of the park brake release handle over the linkage rod.

(7) Reconnect the battery negative cable.

INSTRUMENT PANEL LOWER REINFORCEMENT

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the steering column opening cover from the instrument panel. Refer to **Steering Column Opening Cover** in the Removal and Installation section of this group for the procedures.

(3) Remove the two screws that secure the inside hood latch release handle to the instrument panel lower reinforcement and lower the release handle to the floor.

(4) Depress the latch tabs that secure the 16-way data link wire harness connector to the instrument panel lower reinforcement, and push the connector out of its mounting hole.

(5) Remove the four screws that secure the lower reinforcement to the instrument panel (Fig. 11).

(6) Remove the lower reinforcement from the instrument panel.

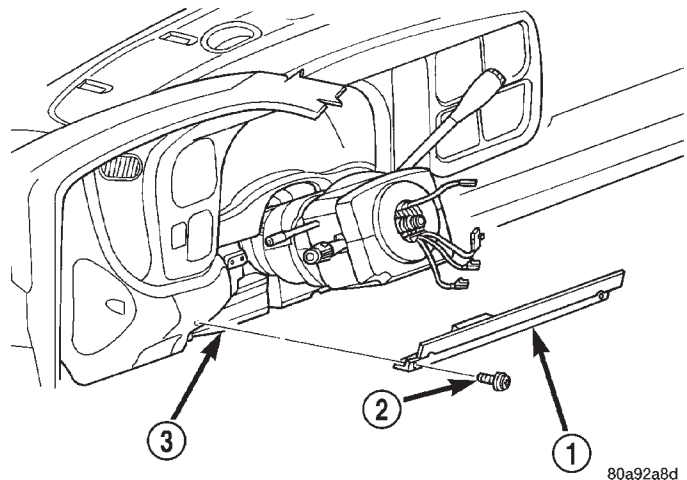
INSTALLATION

(1) Position the lower reinforcement onto the instrument panel.

(2) Install and tighten the four screws that secure the lower reinforcement to the instrument panel. Tighten the screws to 2.2 N·m (20 in. lbs.).

(3) Install the 16-way data link wire harness connector into the mounting hole on the instrument panel lower reinforcement.

(4) Position the inside hood latch release handle to the instrument panel lower reinforcement.



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Fig. 11 Instrument Panel Lower Reinforcement Remove/Install

- 1 - REINFORCEMENT
- 2 - SCREW
- 3 - INSTRUMENT PANEL

(5) Install and tighten the two screws that secure the inside hood latch release handle to the instrument panel lower reinforcement. Tighten the screws to 2.8 N·m (25 in. lbs.).

(6) Install the steering column opening cover onto the instrument panel. Refer to **Steering Column Opening Cover** in the Removal and Installation section of this group for the procedures.

(7) Reconnect the battery negative cable.

INSTRUMENT PANEL CENTER SUPPORT BRACKET

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REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Pull the floor carpet back from the front of the floor panel transmission tunnel far enough to access the center support bracket mounting screws.

(3) Remove the two screws that secure the center support bracket to the instrument panel.

(4) Remove the two screws on the left, and one screw on the right that secure the instrument panel

REMOVAL AND INSTALLATION (Continued)

center support bracket to the Airbag Control Module (ACM) bracket on the floor panel transmission tunnel (Fig. 12).

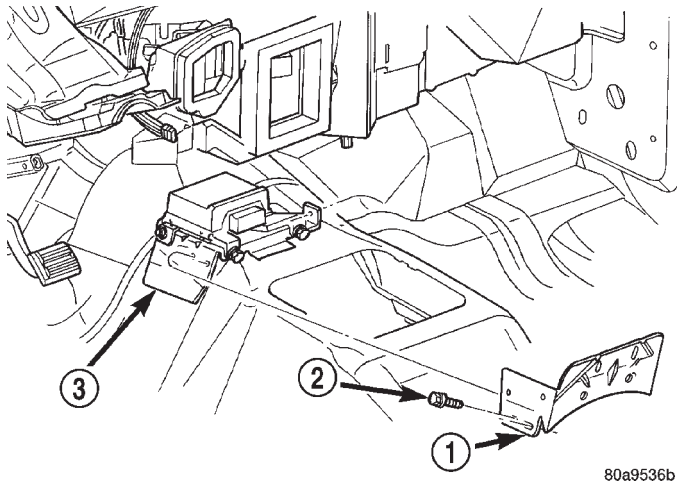


Fig. 12 Instrument Panel Center Support Bracket Remove/Install

- 1 - CENTER SUPPORT BRACKET
- 2 - SCREW
- 3 - AIRBAG CONTROL MODULE BRACKET

(5) Remove the center support bracket from the instrument panel.

INSTALLATION

(1) Position the center support bracket to the ACM bracket on the floor panel transmission tunnel.

(2) Install and tighten the two screws on the left, and one screw on the right that secure the instrument panel center support bracket to the Airbag Control Module (ACM) bracket on the floor panel transmission tunnel. Tighten the screws to 11.8 N·m (105 in. lbs.).

(3) Align the screw holes in the instrument panel to the mounting holes in the center support bracket.

(4) Install and tighten the two screws that secure the center support bracket to the instrument panel. Tighten the screws to 11.8 N·m (105 in. lbs.).

(5) Reposition the floor carpet on the front of the floor panel transmission tunnel to conceal the instrument panel center support bracket.

(6) Reconnect the battery negative cable.

INSTRUMENT PANEL ASH RECEIVER

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-

BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Open the instrument panel ash receiver.

(3) Depress the spring retainer in the center of the open ash receiver to release it, then lift the ash receiver slightly and pull it straight out from the pivot pins in the instrument panel lower bezel.

(4) Remove the two screws that secure the ash receiver flame shield to the instrument panel lower bezel (Fig. 13).

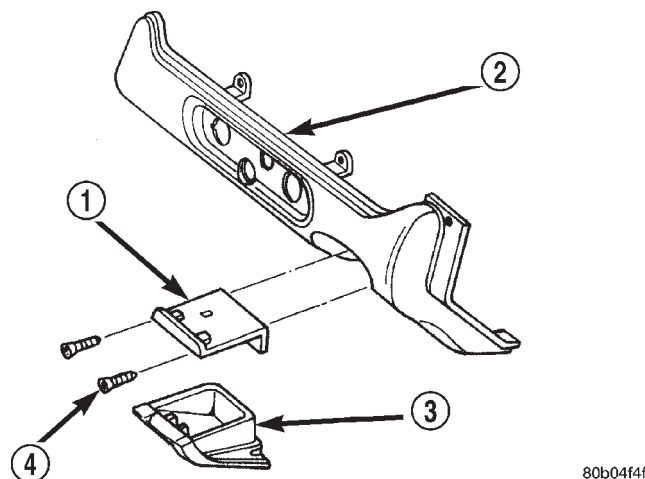


Fig. 13 Instrument Panel Ash Receiver Remove/Install

- 1 - FLAME SHIELD
- 2 - INSTRUMENT PANEL LOWER BEZEL
- 3 - ASH RECEIVER
- 4 - SCREW

(5) Pull the ash receiver flame shield out from the instrument panel far enough to disengage the two retaining tabs on the top of the shield from the mounting holes in the instrument panel lower bezel.

(6) Lower the flame shield from the instrument panel lower bezel far enough to access the ash receiver lamp and hood.

(7) Squeeze the ash receiver lamp and hood bracket to disengage the unit from the mounting hole in the flame shield.

(8) Remove the ash receiver flame shield from the instrument panel lower bezel.

INSTALLATION

(1) Position the ash receiver flame shield to the instrument panel lower bezel.

REMOVAL AND INSTALLATION (Continued)

(2) Squeeze the ash receiver lamp and hood bracket and engage the unit to the mounting hole in the flame shield.

(3) Insert the two retaining tabs on the top of the ash receiver flame shield into the mounting holes in the instrument panel lower bezel, then push the shield forward to engage the tabs with the bezel.

(4) Install and tighten the two screws that secure the ash receiver flame shield to the instrument panel lower bezel. Tighten the screws to 2.2 N·m (20 in. lbs.).

(5) Align the pivot receptacles on each side of the ash receiver with the pivot pins in the instrument panel lower bezel.

(6) Push the ash receiver forward onto the pivot pins in the instrument panel lower bezel until the spring retainer in the center of the open ash receiver snaps into place.

(7) Reconnect the battery negative cable.

INSTRUMENT PANEL LOWER BEZEL

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REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the cluster bezel from the instrument panel. Refer to **Cluster Bezel** in the Removal and Installation section of this group for the procedures.

(3) Open the glove box.

(4) Remove the two screws that secure the lower edge of the lower bezel to the instrument panel (Fig. 14).

(5) Remove the four screws that secure the upper edge of the lower bezel to the instrument panel.

(6) Pull the lower bezel away from the instrument panel far enough to access the instrument panel wire harness connectors.

(7) Disconnect the instrument panel wire harness connectors from the ash receiver lamp, the cigar lighter, the power outlet and the passenger airbag on/off switch (except quad cab) or the rear window defogger switch (quad cab only) (Fig. 15).

(8) Remove the lower bezel from the instrument panel.

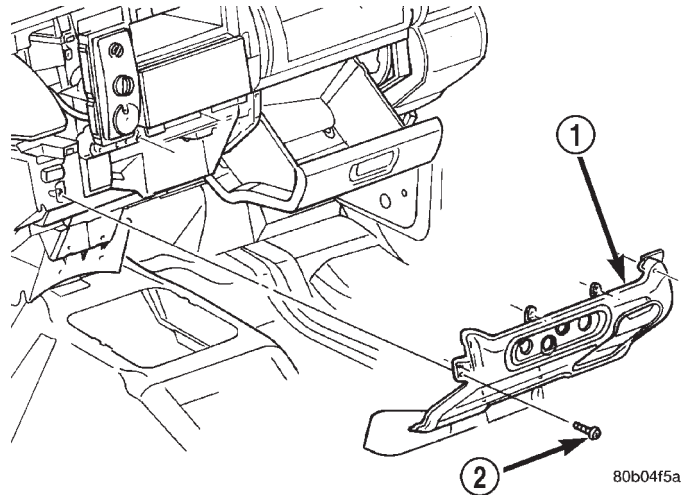


Fig. 14 Instrument Panel Lower Bezel Remove/Install - Typical

- 1 - INSTRUMENT PANEL LOWER BEZEL
2 - SCREW

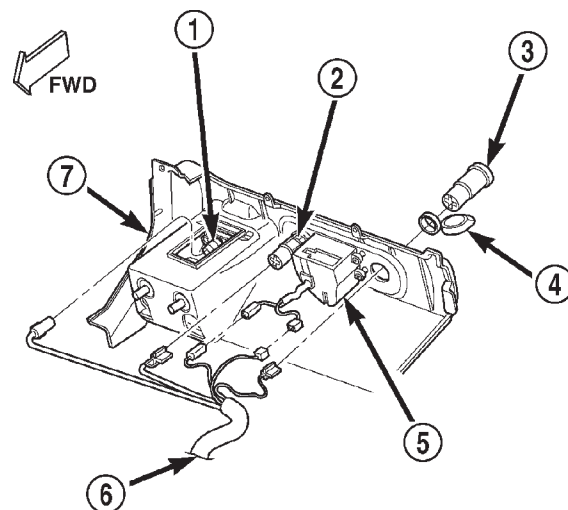


Fig. 15 Instrument Panel Lower Bezel Connections

- 1 - ASH RECEIVER LAMP
2 - CIGAR LIGHTER
3 - POWER OUTLET
4 - CAP
5 - PASSENGER AIRBAG ON/OFF SWITCH
6 - INSTRUMENT PANEL WIRE HARNESS
7 - INSTRUMENT PANEL LOWER BEZEL

INSTALLATION

(1) Position the lower bezel to the instrument panel.

(2) Reconnect the instrument panel wire harness connectors to the ash receiver lamp, the cigar lighter, the power outlet and the passenger airbag on/off

REMOVAL AND INSTALLATION (Continued)

switch (except quad cab) or the rear window defogger switch (quad cab only).

(3) Align the mounting holes in the lower bezel with the screw holes in the instrument panel.

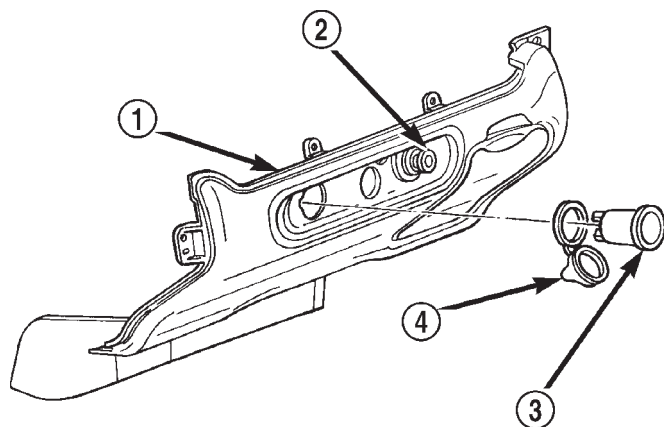
(4) Install and tighten the four screws that secure the upper edge of the lower bezel to the instrument panel. Tighten the screws to 2.2 N·m (20 in. lbs.).

(5) Install and tighten the two screws that secure the lower edge of the lower bezel to the instrument panel. Tighten the screws to 2.2 N·m (20 in. lbs.).

(6) Close the glove box.

(7) Install the cluster bezel onto the instrument panel. Refer to **Cluster Bezel** in the Removal and Installation section of this group for the procedures.

(8) Reconnect the battery negative cable.



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Fig. 16 Cigar Lighter and Power Outlet

- 1 - INSTRUMENT PANEL LOWER BEZEL
- 2 - CIGAR LIGHTER KNOB AND ELEMENT
- 3 - POWER OUTLET BASE AND MOUNT
- 4 - POWER OUTLET CAP

CIGAR LIGHTER AND POWER OUTLET

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the lower bezel from the instrument panel. Refer to **Instrument Panel Lower Bezel** in the Removal and Installation section of this group for the procedures.

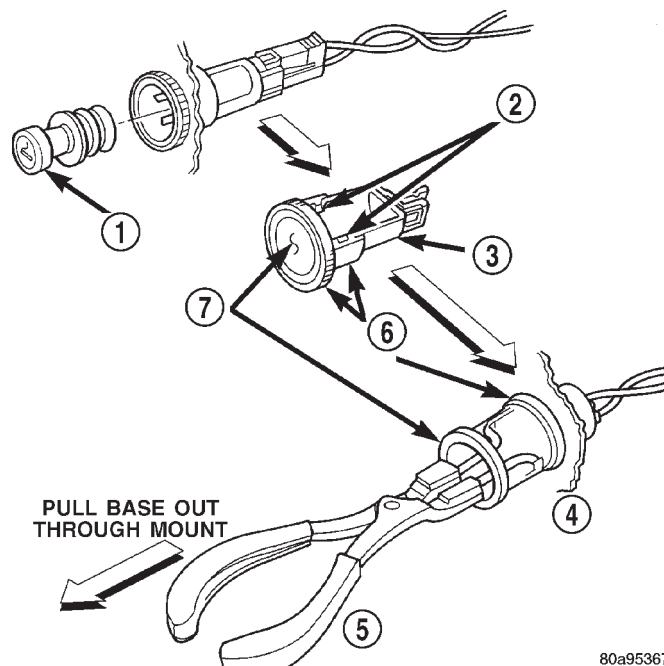
(3) Pull the cigar lighter knob and element out of the cigar lighter receptacle base, or unsnap the protective cap from the power outlet receptacle base (Fig. 16).

(4) Look inside the cigar lighter or power outlet receptacle base and note the position of the rectangular retaining bosses of the mount that secures the receptacle base to the instrument panel lower bezel (Fig. 17).

(5) Insert a pair of external snap ring pliers into the cigar lighter or power outlet receptacle base and engage the tips of the pliers with the retaining bosses of the mount.

(6) Squeeze the pliers to disengage the mount retaining bosses from the receptacle base and, using a gentle rocking motion, pull the pliers and the receptacle base out of the mount.

(7) Remove the cigar lighter or power outlet mount from the instrument panel lower bezel.



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Fig. 17 Cigar Lighter and Power Outlet Remove/Install - Typical

- 1 - KNOB AND ELEMENT
- 2 - RETAINING BOSSES-ENGAGE PLIERS HERE
- 3 - BASE
- 4 - PARTIALLY REMOVED
- 5 - EXTERNAL SNAP-RING PLIERS
- 6 - MOUNT
- 7 - BASE

INSTALLATION

(1) Install the cigar lighter or power outlet mount into the instrument panel lower bezel.

REMOVAL AND INSTALLATION (Continued)

(2) Align the splines on the outside of the cigar lighter or power outlet receptacle base connector with the grooves on the inside of the mount.

(3) Press firmly on the cigar lighter or power outlet receptacle base until the retaining bosses of the mount are fully engaged in their receptacles.

(4) Install the cigar lighter knob and element into the cigar lighter receptacle base, or the protective cap into the power outlet receptacle base.

(5) Install the lower bezel onto the instrument panel. Refer to **Instrument Panel Lower Bezel** in the Removal and Installation section of this group for the procedures.

(6) Reconnect the battery negative cable.

GLOVE BOX LAMP AND SWITCH

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REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Open the glove box.

(3) Reach through the glove box opening and behind the glove box opening upper reinforcement in the instrument panel to access and depress the retaining latches on the top and bottom of the glove box lamp and switch housing.

(4) While holding the retaining latches depressed, push the glove box lamp and switch out through the mounting hole in the instrument panel glove box opening upper reinforcement (Fig. 18).

(5) Pull the glove box lamp and switch out from the mounting hole far enough to access the wire harness connector.

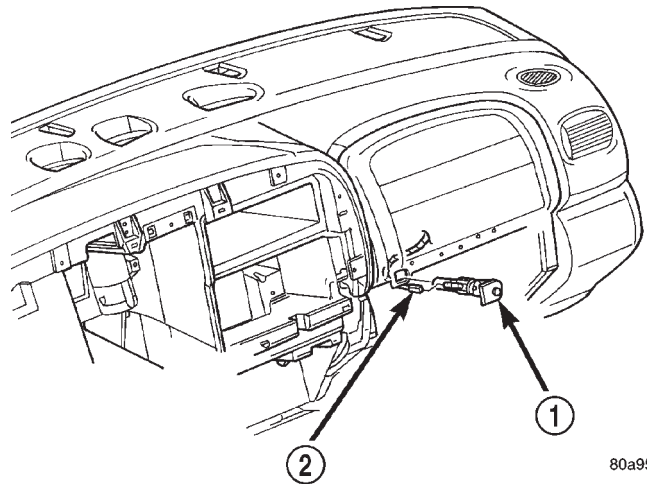
(6) Disconnect the instrument panel wire harness connector from the glove box lamp and switch connector receptacle.

(7) Remove the glove box lamp and switch from the instrument panel.

INSTALLATION

(1) Position the glove box lamp and switch to the instrument panel.

(2) Reconnect the instrument panel wire harness connector to the glove box lamp and switch connector receptacle.



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Fig. 18 Glove Box Lamp and Switch Remove/Install

- 1 - GLOVE BOX LAMP AND SWITCH
2 - CONNECTOR

(3) Feed the instrument panel wire harness back into the glove box lamp and switch mounting hole in the glove box opening upper reinforcement.

(4) Align the glove box lamp and switch housing with the mounting hole in the instrument panel glove box opening upper reinforcement.

(5) Push the glove box lamp and switch into the mounting hole in the instrument panel glove box opening upper reinforcement until the retaining latches are fully engaged.

(6) Close the glove box.

(7) Reconnect the battery negative cable.

GLOVE BOX LATCH STRIKER

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REMOVAL

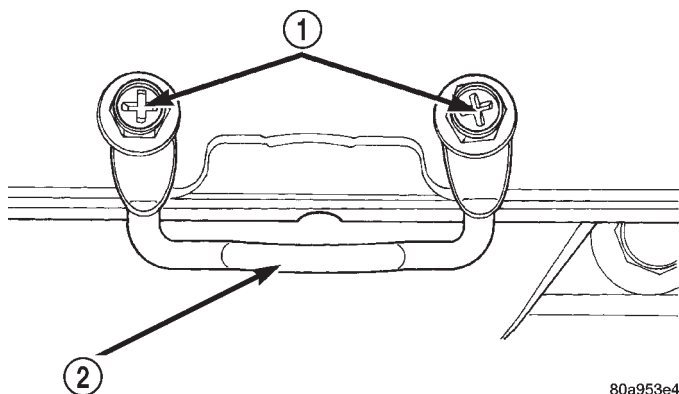
(1) Disconnect and isolate the battery negative cable.

(2) Open the glove box.

(3) Remove the two screws that secure the latch striker to the instrument panel glove box opening upper reinforcement (Fig. 19).

(4) Remove the latch striker from the instrument panel glove box opening upper reinforcement.

REMOVAL AND INSTALLATION (Continued)

**Fig. 19 Glove Box Latch Striker Remove/Install**

1 - SCREWS

2 - STRIKER

INSTALLATION

(1) Position the latch striker onto the instrument panel glove box opening upper reinforcement.

(2) Install and tighten the two screws that secure the latch striker to the instrument panel glove box opening upper reinforcement. Tighten the screws to 2.2 N·m (20 in. lbs.).

(3) Close the glove box.

(4) Reconnect the battery negative cable.

GLOVE BOX

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ROLL DOWN

(1) Disconnect and isolate the battery negative cable.

(2) Open the glove box.

(3) Depress the two sides of the glove box bin far enough so that the rubber stop bumpers located on each side of the bin will clear the metal stops located on the bracket on each side of the glove box opening.

(4) While holding the sides of the glove box bin depressed, roll the glove box downward until the stop bumpers are beyond the stops, then release the sides of the bin.

(5) Reverse the roll down procedure to roll the glove box back up into the instrument panel.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

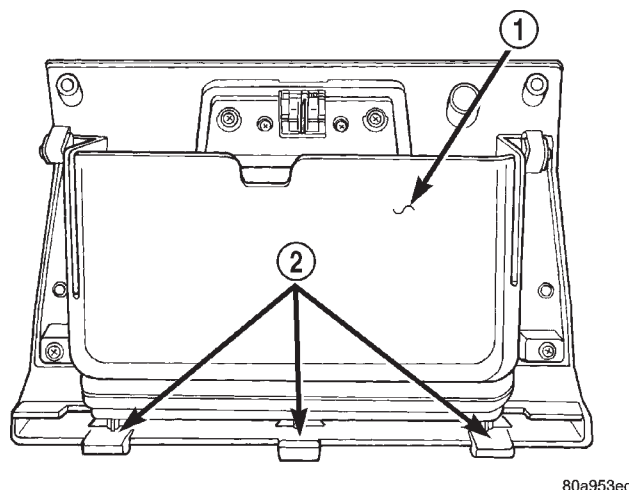
(2) Open the glove box.

(3) Locate three screws in the bottom of the glove box bin. Remove only the center screw.

(4) Roll down the glove box from the instrument panel. Refer to **Glove Box - Roll Down** in the Removal and Installation section of this group for the procedures.

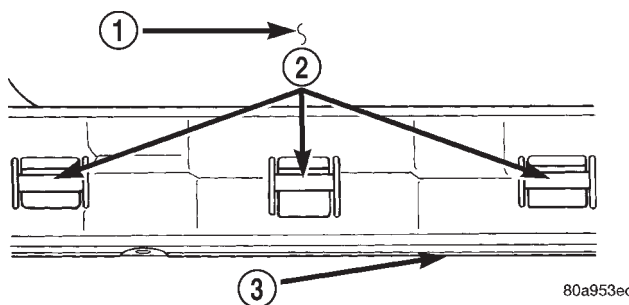
(5) Grasp the upper outboard corner of the glove box door securely with both hands.

(6) Pull the door firmly and quickly away from the instrument panel to unsnap the three glove box hinge hooks (Fig. 20) from the three hinge pins on the instrument panel (Fig. 21).

**Fig. 20 Glove Box Hinge Hooks**

1 - GLOVE BOX

2 - HINGE HOOKS

**Fig. 21 Glove Box Hinge Pins**

1 - GLOVE BOX OPENING

2 - HINGE PINS

3 - INSTRUMENT PANEL

(7) Remove the glove box from the instrument panel.

REMOVAL AND INSTALLATION (Continued)

INSTALLATION

(1) Position the glove box to the instrument panel with the bin inserted in the glove box opening far enough so that the rubber stop bumpers located on each side of the bin are behind the metal stops located on the bracket on each side of the glove box opening.

(2) Starting on the outboard side of the glove box, insert the first glove box hinge hook over the first hinge pin on the instrument panel.

(3) Use a slight twisting action on the glove box door to insert the second hinge hook under the second hinge pin.

(4) Finally, again using a slight twisting action on the glove box door, insert the last hinge hook over the last hinge pin.

(5) Install and tighten the center screw in the bottom of the glove box bin. Tighten the screw to 2.2 N·m (20 in. lbs.).

(6) Close the glove box, then reopen it to check for proper hinge operation.

(7) Reconnect the battery negative cable.

GLOVE BOX COMPONENTS

The only serviced component of the glove box is the glove box bin. If any other component of the glove box is faulty or damaged, the entire glove box assembly must be replaced.

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REMOVAL

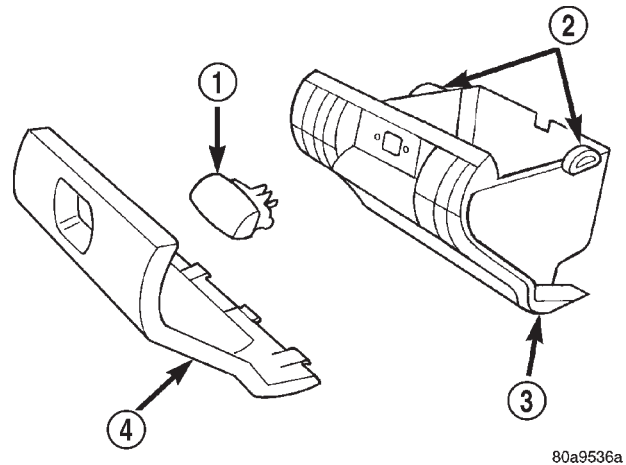
GLOVE BOX BIN

(1) Disconnect and isolate the battery negative cable.

(2) Remove the glove box from the instrument panel. Refer to **Glove Box - Removal** in the Removal and Installation section of this group for the procedures.

(3) Remove the two screws that secure each outboard flange of the glove box bin to the glove box door (Fig. 22).

(4) Remove the two remaining screws in the bottom of the glove box bin (the center screw was removed during glove box removal) that secure the bin to the bottom of the glove box door.



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Fig. 22 Glove Box Components Remove/Install

- 1 - LATCH
- 2 - STOP BUMPERS
- 3 - BIN
- 4 - DOOR

(5) Remove the four screws that secure the top of the glove box bin and the glove box latch to the glove box door.

(6) Remove the glove box bin and the glove box latch from the glove box door.

INSTALLATION

GLOVE BOX BIN

(1) Position the glove box latch and the glove box bin to the glove box door.

(2) Install and tighten the four screws that secure the top of the glove box bin and the glove box latch to the glove box door. Tighten the screws to 2.2 N·m (20 in. lbs.).

(3) Install and tighten the two outboard screws in the bottom of the glove box bin (the center screw will be installed following glove box installation) that secure the bin to the bottom of the glove box door. Tighten the screws to 2.2 N·m (20 in. lbs.).

(4) Install and tighten the two screws that secure each outboard flange of the glove box bin to the glove box door. Tighten the screws to 2.2 N·m (20 in. lbs.).

(5) Install the glove box onto the instrument panel. Refer to **Glove Box - Installation** in the Removal and Installation section of this group for the procedures.

(6) Reconnect the battery negative cable.

CENTRAL TIMER MODULE

Before replacing a high-line Central Timer Module (CTM), use a DRB scan tool to determine the current settings for the CTM programmable features. These settings should be duplicated in the replacement

REMOVAL AND INSTALLATION (Continued)

CTM using the DRB scan tool, before returning the vehicle to service.

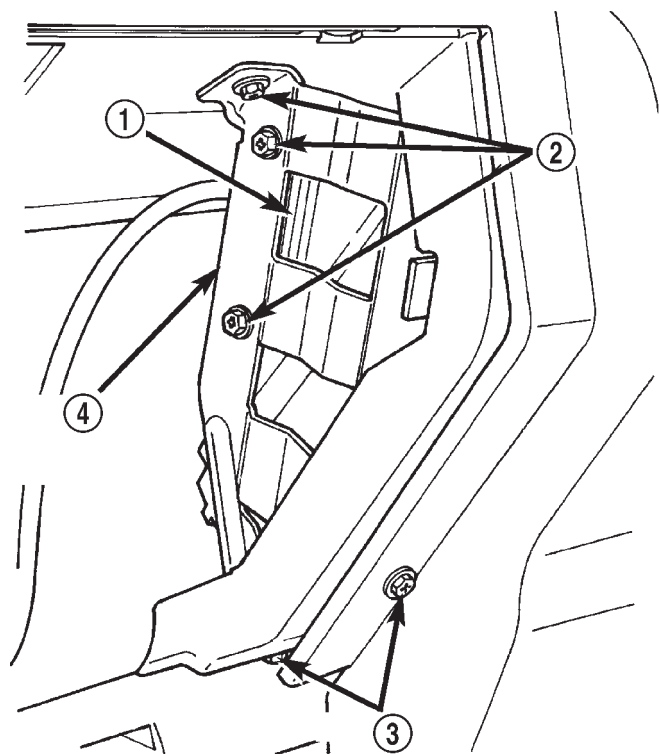
WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the glove box from the instrument panel. Refer to **Glove Box - Removal** in the Removal and Installation section of this group for the procedures.

(3) Remove the three screws that secure the bracket on the outboard side of the glove box opening to the instrument panel (Fig. 23).

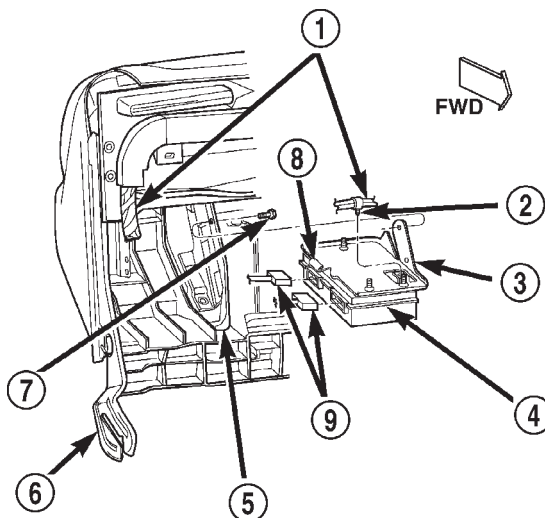


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Fig. 23 Outboard Glove Box Opening Bracket Remove/Install

- 1 - CTM BRACKET
- 2 - SCREWS
- 3 - SCREWS
- 4 - GLOVE BOX OPENING BRACKET

(4) Remove the two screws that secure the Central Timer Module (CTM) mounting bracket to the bracket on the outboard side of instrument panel glove box opening (Fig. 24).



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Fig. 24 Central Timer Module Remove/Install

- 1 - INSTRUMENT PANEL WIRE HARNESS
- 2 - RETAINER
- 3 - MOUNTING BRACKET
- 4 - CENTRAL TIMER MODULE
- 5 - OUTBOARD GLOVE BOX OPENING BRACKET
- 6 - END BRACKET
- 7 - SCREW (2)
- 8 - TAB
- 9 - WIRE HARNESS CONNECTORS

(5) Remove the bracket on the outboard side of the glove box opening from the instrument panel through the glove box opening.

(6) Move the CTM and its mounting bracket into the glove box opening far enough to access and disengage the instrument panel wire harness retainer from the CTM mounting bracket.

(7) Disconnect the instrument panel wire harness connector(s) (one connector for the base CTM, two connectors for high-line CTM) from the CTM connector receptacle(s).

(8) Remove the CTM and mounting bracket unit from the instrument panel through the glove box opening.

INSTALLATION

(1) Position the CTM and mounting bracket unit in the instrument panel glove box opening.

(2) Reconnect the instrument panel wire harness connector(s) (one connector for the base CTM, two connectors for high-line CTM) to the CTM connector receptacle(s).

(3) Engage the instrument panel wire harness retainer with the hole in the CTM mounting bracket.

REMOVAL AND INSTALLATION (Continued)

(4) Engage the tab on the outboard end of the CTM mounting bracket in the slot in the right instrument panel end bracket.

(5) Working through the instrument panel glove box opening, position the outboard glove box opening bracket to the CTM mounting bracket.

(6) Install and tighten the two screws that secure the Central Timer Module (CTM) mounting bracket to the bracket on the outboard side of instrument panel glove box opening. Tighten the screws to 2.2 N·m (20 in. lbs.).

(7) Install and tighten the three screws that secure the bracket on the outboard side of the glove box opening to the instrument panel. Tighten the screws to 2.2 N·m (20 in. lbs.).

(8) Install the glove box onto the instrument panel. Refer to **Glove Box - Installation** in the Removal and Installation section of this group for the procedures.

(9) Reconnect the battery negative cable.

NOTE: If a new high-line Central Timer Module is installed, the programmable features must be enabled and/or disabled to the customer's preferred settings. Use a DRB scan tool and the proper Diagnostic Procedures manual to perform these operations.

INSTRUMENT PANEL ASSEMBLY

WARNING: ON VEHICLES EQUIPPED WITH AIRBAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIRBAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

REMOVAL

NOTE: Before starting this procedure, be certain to turn the steering wheel until the front wheels are in the straight-ahead position.

(1) Disconnect and isolate the battery negative cable.

(2) Remove the trim from the right and left door sills. Refer to **Door Sill Trim Cover** in the Removal and Installation section of Group 23 - Body for the procedures.

(3) Remove the trim from the left and right cowl side inner panels. Refer to **Cowl Trim Cover** in the

Removal and Installation section of Group 23 - Body for the procedures.

(4) Remove the steering column opening cover from the instrument panel. Refer to **Steering Column Opening Cover** in the Removal and Installation section of this group for the procedures.

(5) Remove the two screws that secure the inside hood latch release handle to the instrument panel lower reinforcement and lower the release handle to the floor.

(6) Disconnect the driver side airbag module wire harness connector from the instrument panel wire harness at the instrument panel lower reinforcement.

(7) If the vehicle is so equipped, disconnect the overdrive lockout switch wire harness connector from the instrument panel wire harness near the instrument panel lower reinforcement.

(8) Remove the steering column from the vehicle, but do not remove the driver side airbag module, the steering wheel, or the switches from the steering column. Be certain that the steering wheel is locked and secured from rotation to prevent the loss of clockspring centering. Refer to **Steering Column** in the Removal and Installation section of Group 19 - Steering for the procedures.

(9) From under the driver side of the instrument panel, perform the following:

(a) Remove the screw from the center of the headlamp and dash to instrument panel bulkhead wire harness connector and disconnect the connector.

(b) Disconnect the two body wire harness connectors from the two instrument panel wire harness connectors that are secured to the outboard side of the instrument panel bulkhead connector.

(c) Disconnect the three wire harness connectors (one from the body wire harness, and two from the headlamp and dash wire harness) from the three junction block connector receptacles located closest to the dash panel.

(d) Unsnap the plastic retainer clip that secures the park brake release linkage rod to the lever on the back side of the park brake release handle and disengage the linkage rod end from the lever on the handle.

(e) Disconnect the instrument panel wire harness connector from the stop lamp switch connector receptacle.

(f) Disconnect the vacuum harness connector located near the left end of the heater-A/C housing.

(10) Remove the center support bracket from the instrument panel. Refer to **Instrument Panel Center Support Bracket** in the Removal and Installation section of this group for the procedures.

(11) Remove the screw that secures the instrument panel wire harness ground eyelets to the left side of

REMOVAL AND INSTALLATION (Continued)

the Airbag Control Module (ACM) mount on the floor panel transmission tunnel.

(12) Disconnect the instrument panel wire harness connector from the ACM connector receptacle.

(13) Remove the glove box from the instrument panel. Refer to **Glove Box** in the Removal and Installation section of this group for the procedures.

(14) Reaching through the instrument panel glove box opening, perform the following:

(a) Disconnect the two halves of the radio antenna coaxial cable connector near the center of the lower instrument panel glove box opening.

(b) Disengage the antenna half of the radio antenna coaxial cable from the retainer clip near the outboard side of the lower instrument panel glove box opening.

(c) Disconnect the blower motor wire harness connector located near the heater-A/C housing support brace on the inboard side of the instrument panel glove box opening.

(15) From under the passenger side of the instrument panel, perform the following:

(a) If the vehicle is so equipped, disconnect the two instrument panel wire harness connectors from the Infinity speaker amplifier connector receptacles on the right cowl side inner panel.

(b) Remove the nut that secures the instrument panel wire harness radio ground eyelet to the stud on the right cowl side inner panel.

(16) Loosen the right and left instrument panel cowl side roll-down bracket screws about 6 mm (0.25 inch) (Fig. 25).

(17) Remove the five screws that secure the top of the instrument panel to the top of the dash panel, removing the center screw last.

(18) Pull the lower instrument panel rearward until the right and left cowl side roll-down bracket screws are in the roll-down slot position of both brackets (Fig. 26).

(19) Roll down the instrument panel and install a temporary hook in the center hole on top of the instrument panel. Secure the other end of the hook to the center hole in the top of the dash panel. The hook should support the instrument panel in its rolled down position about 46 cm (18 inches) from the dash panel.

(20) With the instrument panel supported in the roll-down position:

(a) Disconnect the two instrument panel wire harness connectors from the door jumper wire harness connectors located on a bracket near the right end of the instrument panel.

(b) Disconnect the instrument panel wire harness connector from the blower motor resistor connector receptacle on the dash panel.

(c) Disconnect the temperature control cable flag retainer from the top of the heater-A/C housing and pull the cable core adjuster clip off of the blend-air door lever.

(d) Disconnect the demister duct flexible hose from the adapter on the top of the heater-A/C housing.

(21) With the aid of an assistant, remove the temporary hook and lift the instrument panel assembly off of the roll-down bracket screws and remove it from the vehicle.

INSTALLATION

(1) With the aid of an assistant, install the instrument panel assembly onto the roll-down bracket screws in the vehicle. Install a temporary hook in the center hole on top of the instrument panel. Secure the other end of the hook to the center hole in the top of the dash panel. The hook should support the instrument panel in its rolled down position about 46 cm (18 inches) from the dash panel.

(2) With the instrument panel supported in the roll-down position:

(a) Reconnect the two instrument panel wire harness connectors to the door jumper wire harness connectors located on a bracket near the right end of the instrument panel.

(b) Reconnect the instrument panel wire harness connector to the blower motor resistor connector receptacle on the dash panel.

(c) Reconnect the temperature control cable flag retainer onto the top of the heater-A/C housing and push the cable core adjuster clip onto the blend-air door lever.

(d) Reconnect the demister duct flexible hose to the adapter on the top of the heater-A/C housing.

(3) Push the lower instrument panel forward until the right and left cowl side roll-down bracket screws are in the installed slot position of both brackets (Fig. 26).

(4) Remove the temporary hook from the instrument panel and roll the instrument panel up to the installed position against the dash panel.

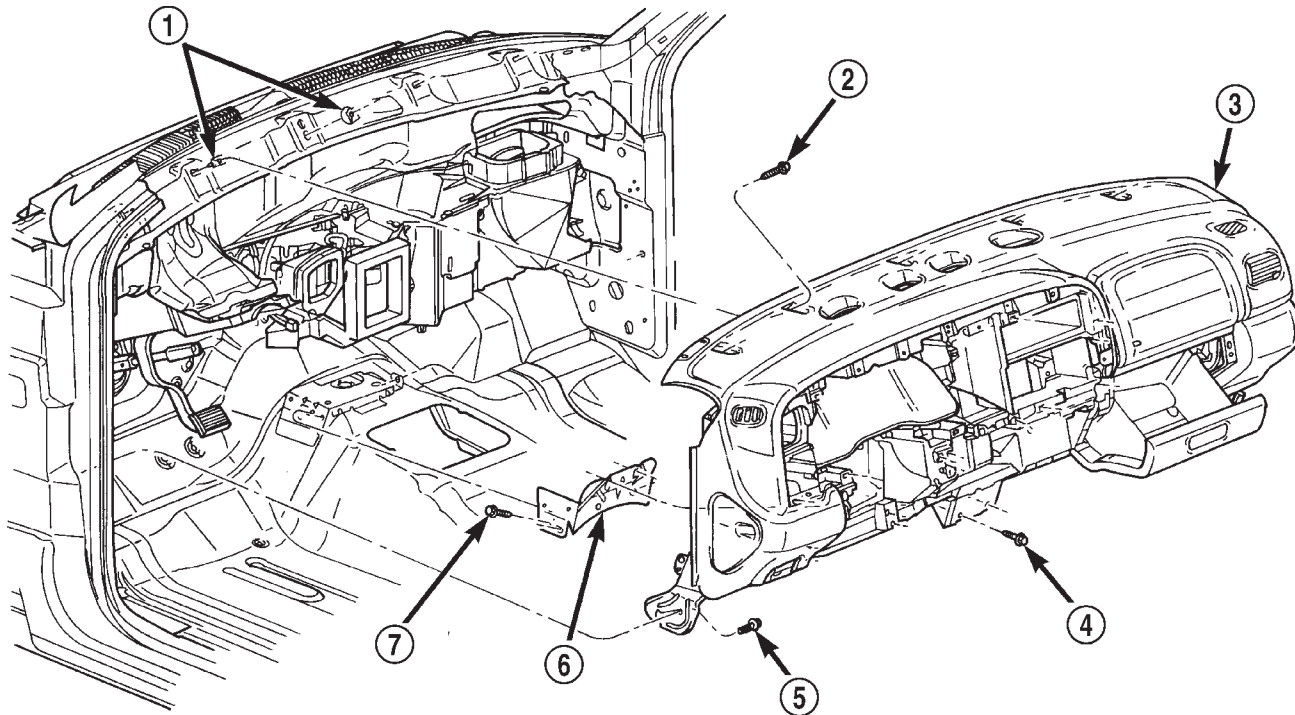
(5) Install and tighten the five screws that secure the top of the instrument panel to the top of the dash panel. Tighten the screws to 3.2 N·m (28 in. lbs.).

(6) Tighten the right and left instrument panel cowl side roll-down bracket screws. Tighten the screws to 11.9 N·m (105 in. lbs.).

(7) From under the passenger side of the instrument panel, perform the following:

(a) If the vehicle is so equipped, reconnect the two instrument panel wire harness connectors to the Infinity speaker amplifier connector receptacles on the right cowl side inner panel.

REMOVAL AND INSTALLATION (Continued)

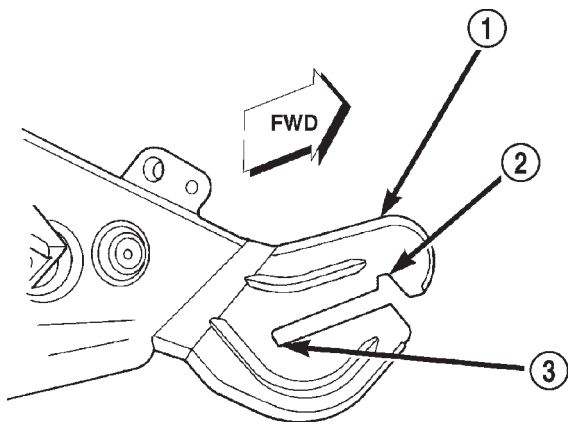


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Fig. 25 Instrument Panel Assembly Remove/Install

- 1 - CLIPS
2 - SCREW
3 - INSTRUMENT PANEL
4 - SCREW

- 5 - SCREW
6 - CENTER SUPPORT BRACKET
7 - SCREW



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Fig. 26 Roll-Down Bracket

- 1 - ROLL-DOWN BRACKET
2 - ROLL-DOWN SLOT
3 - INSTALLED SLOT

(b) Install and tighten the nut that secures the instrument panel wire harness radio ground eyelet to the stud on the right cowl side inner panel. Tighten the nut to 3.9 N·m (35 in. lbs.).

(8) Reaching through the instrument panel glove box opening, perform the following:

(a) Reconnect the two halves of the radio antenna coaxial cable connector near the center of the lower instrument panel glove box opening.

(b) Engage the antenna half of the radio antenna coaxial cable into the retainer clip near the outboard side of the lower instrument panel glove box opening.

(c) Reconnect the blower motor wire harness connector located near the heater-A/C housing support brace on the inboard side of the instrument panel glove box opening.

(9) Install the glove box onto the instrument panel. Refer to **Glove Box** in the Removal and Installation section of this group for the procedures.

(10) Install and tighten the screw that secures the instrument panel wire harness ground eyelets to the left side of the Airbag Control Module (ACM) mount on the floor panel transmission tunnel. Tighten the screw to 3.4 N·m (30 in. lbs.).

(11) Reconnect the instrument panel wire harness connector to the ACM connector receptacle.

(12) Install the center support bracket onto the instrument panel. Refer to **Instrument Panel Center Support Bracket** in the Removal and Installation section of this group for the procedures.

REMOVAL AND INSTALLATION (Continued)

(13) From under the driver side of the instrument panel, perform the following:

(a) Reconnect the headlamp and dash to instrument panel bulkhead wire harness connector and tighten the screw in the center of the connector. Tighten the screw to 3.5 N·m (31 in. lbs.).

(b) Reconnect the two body wire harness connectors to the two instrument panel wire harness connectors that are secured to the outboard side of the instrument panel bulkhead connector.

(c) Reconnect the three wire harness connectors (one from the body wire harness, and two from the headlamp and dash wire harness) to the three junction block connector receptacles located closest to the dash panel.

(d) Engage the linkage rod end into the lever on the back side of the park brake release handle and snap the plastic retainer clip over the linkage rod that secures it to the lever.

(e) Reconnect the instrument panel wire harness connector to the stop lamp switch connector receptacle.

(f) Reconnect the vacuum harness connector located near the left end of the heater-A/C housing.

(14) Install the steering column into the vehicle. Be certain that the steering wheel was locked and secured from rotation to prevent the loss of clock-spring centering. Refer to **Steering Column** in the Removal and Installation section of Group 19 - Steering for the procedures.

(15) If the vehicle is so equipped, reconnect the overdrive lockout switch wire harness connector to the instrument panel wire harness near the instrument panel lower reinforcement.

(16) Reconnect the driver side airbag module wire harness connector to the instrument panel wire harness at the instrument panel lower reinforcement.

(17) Position the inside hood latch release handle to the instrument panel lower reinforcement.

(18) Install and tighten the two screws that secure the inside hood latch release handle to the instrument panel lower reinforcement. Tighten the screws to 2.8 N·m (25 in. lbs.).

(19) Install the steering column opening cover onto the instrument panel. Refer to **Steering Column Opening Cover** in the Removal and Installation section of this group for the procedures.

(20) Install the trim onto the left and right cowl side inner panels. Refer to **Cowl Trim Cover** in the Removal and Installation section of Group 23 - Body for the procedures.

(21) Install the trim onto the right and left door sills. Refer to **Door Sill Trim Cover** in the Removal and Installation section of Group 23 - Body for the procedures.

(22) Reconnect the battery negative cable.

INSTRUMENT PANEL TOP COVER

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

REMOVAL

(1) Disconnect and isolate the battery negative cable.

(2) Remove the cluster bezel from the instrument panel. Refer to **Cluster Bezel** in the Removal and Installation section of this group for the procedures.

(3) Remove the park brake release handle from the instrument panel. Refer to **Park Brake Release Handle** in the Removal and Installation section of this group for the procedures.

(4) Remove the glove box from the instrument panel. Refer to **Glove Box** in the Removal and Installation section of this group for the procedures.

(5) Remove the glove box lamp and switch from the instrument panel. Refer to **Glove Box Lamp and Switch** in the Removal and Installation section of this group for the procedures.

(6) Reach through and above the instrument panel glove box opening to remove the two screws that secure the passenger side airbag module lower bracket to the instrument panel (Fig. 27).

(7) Reach through and above the instrument panel glove box opening to access and disconnect the passenger side airbag module wire harness connector from the instrument panel wire harness.

(8) Disengage the passenger side airbag module wire harness connector retainer from the back of the instrument panel inboard glove box opening bracket.

(9) Remove the heater and air conditioner control from the instrument panel. Refer to **Heater-A/C Control** in the Removal and Installation section of Group 24 - Heating and Air Conditioning for the procedures.

(10) Reach through the instrument panel heater-A/C control opening to remove the screw that secures the flexible demister tube to the demister duct tee, and remove the tube from the tee.

(11) Reach through the instrument panel heater-A/C control opening to remove the screw that secures the demister duct tee to the instrument panel.

(12) Remove the instrument panel from the vehicle. Refer to **Instrument Panel Assembly** in the

REMOVAL AND INSTALLATION (Continued)

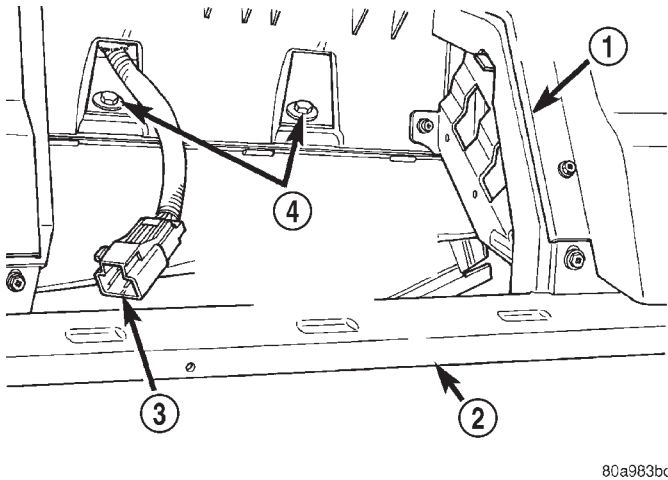


Fig. 27 Passenger Side Airbag Module Lower Bracket Screws

- 1 - GLOVE BOX OPENING
- 2 - LOWER INSTRUMENT PANEL REINFORCEMENT
- 3 - AIRBAG MODULE WIRE HARNESS CONNECTOR
- 4 - PASSENGER SIDE AIRBAG MODULE LOWER BRACKET SCREWS

Removal and Installation section of this group for the procedures.

(13) Place the instrument panel on a suitable work surface. Be certain to take the proper precautions to protect the instrument panel from any possible cosmetic damage.

(14) Use a drill motor with a large drill bit, a high-speed grinder, or a soldering iron with a cutting tip to remove the collapsed heat stakes from the underside of the five instrument panel to dash panel mounting screw holes at or below the illustrated cut line (Fig. 28). If the instrument panel top cover is to be reused, use care not to drill through or to enlarge the screw holes in the top cover. To prevent the removal of too much material, use a trim stick or another suitable wide flat-bladed tool to gently pry between the top cover and the instrument panel base bracket near the heat stake during the removal process. This will cause the panels to separate noticeably when the collapsed heat stake has been sufficiently removed. After removal, the heat stakes should be flush with, or protruding no more than 4 millimeters (0.1875 inches) from the lower surface of the top cover.

(15) Remove the screws around the perimeter of the top cover that secure it to the instrument panel base.

(16) Lift the top cover off of the instrument panel.

INSTALLATION

WARNING: USE EXTREME CARE TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE

PASSENGER SIDE AIRBAG MODULE, OR BECOMING ENTRAPPED BETWEEN THE INSTRUMENT PANEL TOP COVER AND THE PASSENGER SIDE AIRBAG MODULE. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN OCCUPANT INJURIES UPON AIRBAG DEPLOYMENT.

NOTE: New instrument panel top covers are supplied with heat stakes that have not been collapsed. These non-collapsed heat stakes must also be removed in order to install the new top cover. Use a hack saw or razor knife to remove the non-collapsed heat stakes from a new top cover. See Step 14 in the Removal procedure for the heat stake removal details.

(1) Position the top cover onto the instrument panel.

(2) Install and tighten the screws around the perimeter of the top cover that secure it to the instrument panel base. Tighten the screws to 2.2 N·m (20 in. lbs.).

(3) Install the instrument panel into the vehicle. Refer to **Instrument Panel Assembly** in the Removal and Installation section of this group for the procedures.

(4) Reach through the instrument panel heater-A/C control opening to install and tighten the screw that secures the demister duct tee to the instrument panel. Tighten the screw to 2.2 N·m (20 in. lbs.).

(5) Reach through the instrument panel heater-A/C control opening to install and tighten the screw that secures the flexible demister tube to the demister duct tee, and remove the tube from the tee. Tighten the screw to 2.2 N·m (20 in. lbs.).

(6) Install the heater and air conditioner control onto the instrument panel. Refer to **Heater-A/C Control** in the Removal and Installation section of Group 24 - Heating and Air Conditioning for the procedures.

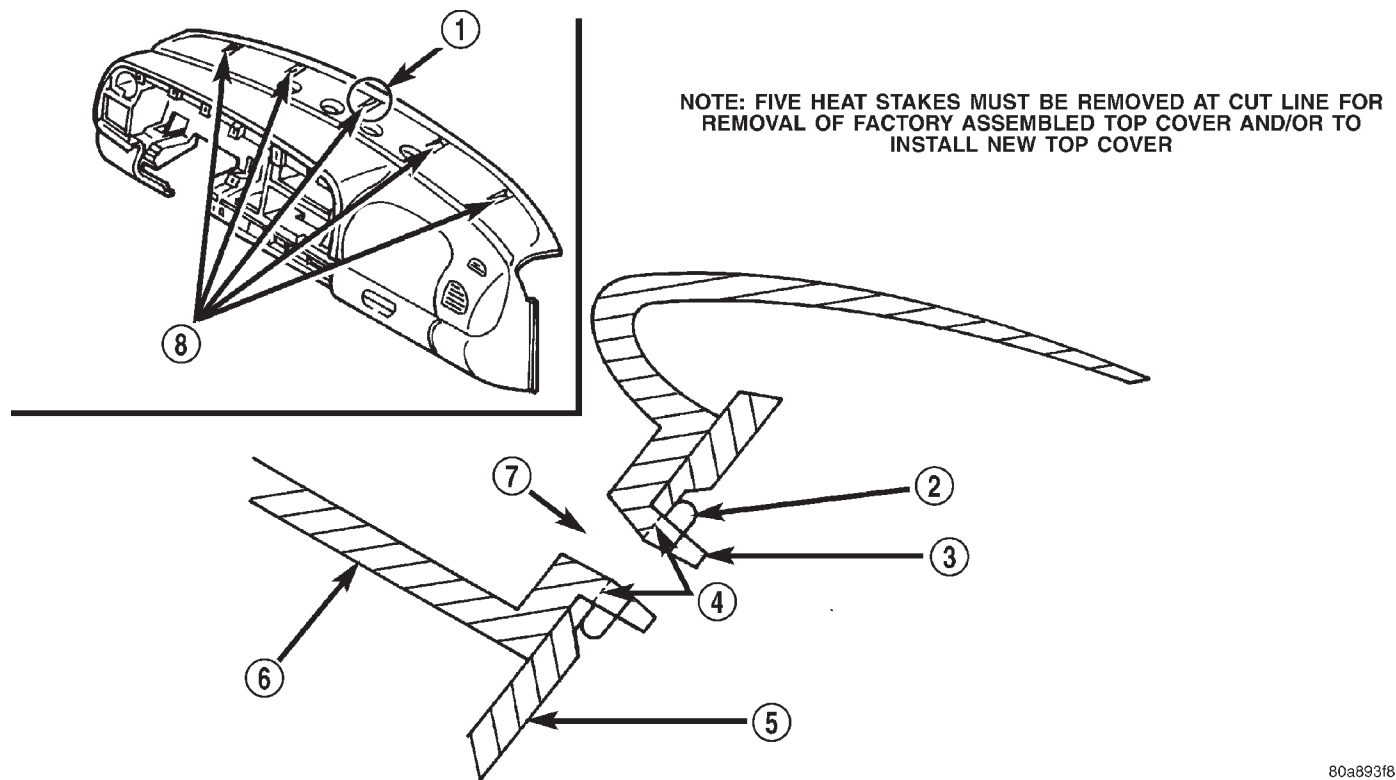
(7) Engage the passenger side airbag module wire harness connector retainer onto the back of the instrument panel inboard glove box opening bracket.

(8) Reach through and above the instrument panel glove box opening to access and reconnect the passenger side airbag module wire harness connector to the instrument panel wire harness.

(9) Reach through and above the instrument panel glove box opening to install and tighten the two screws that secure the passenger side airbag module lower bracket to the instrument panel. Tighten the screws to 11.8 N·m (105 in. lbs.).

(10) Install the glove box lamp and switch onto the instrument panel. Refer to **Glove Box Lamp and Switch** in the Removal and Installation section of this group for the procedures.

REMOVAL AND INSTALLATION (Continued)



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Fig. 28 Instrument Panel Top Cover Remove/Install

- | | |
|--|--------------------------------|
| 1 - AREA OF DETAIL | 5 - INSTRUMENT PANEL BASE |
| 2 - COMPRESSED HEAT STAKE (FACTORY ASSEMBLED TOP COVER) | 6 - INSTRUMENT PANEL TOP COVER |
| 3 - HEAT STAKE (NEW TOP COVER) | 7 - MOUNTING SCREW HOLE |
| 4 - CUT LINE (REMOVE UNSHADED MATERIAL) | 8 - FIVE HEAT STAKE LOCATIONS |

(11) Install the glove box onto the instrument panel. Refer to **Glove Box** in the Removal and Installation section of this group for the procedures.

(12) Install the park brake release handle onto the instrument panel. Refer to **Park Brake Release Handle** in the Removal and Installation section of this group for the procedures.

(13) Install the cluster bezel onto the instrument panel. Refer to **Cluster Bezel** in the Removal and Installation section of this group for the procedures.

(14) Reconnect the battery negative cable.